

## GOVT. P.G. COLLEGE FOR WOMEN, PANCHKULA

Session 2025-2026 (EVEN SEMESTER)

NAME OF PROFESSOR: ANITA YADAV

DESIGNATION: EXTENSION LECTURER

SUBJECT/PAPER: Object Oriented Programming using C++ (B23-CAP-201)

CLASS: BCA (2<sup>nd</sup> sem)

SR. NO.	MONTH	TOPICS TO BE COVERED	REMARKS IF ANY
1.	January	<b>Input Output in C++:</b> Unformatted and Formatted I/O Operations. I/O using insertion and extraction operators and streams in C++. <b>Functions:</b> Declaration and Definition, return values, arguments, passing parameters by value, call by reference, call by pointer, Recursion, Inline Functions, Function overloading. Pointers, structures, and union in C++.	Group Discussion
2.	February	<b>Object-oriented features of C++:</b> Class and Objects, Data hiding & encapsulation, abstraction, Data Members and Member Functions, accessing class members, empty class, local class, global class, Scope Resolution Operator and its Uses, Static Data Members, Static Member Functions, Structure vs Class, Friend function and friend class. <b>Constructors and Destructors:</b> Constructors, Instantiation of objects, Default constructor, Parameterized constructor, Copy constructor and its use, Destructors, Dynamic initialization of objects.	1 <sup>ST</sup> Assignment
3.	March	<b>Constructors and Destructors:</b> Constructors, Instantiation of objects, Default constructor, Parameterized constructor, Copy constructor and its use, Destructors, Dynamic initialization of objects <b>Operator Overloading:</b> Overloading unary and binary operators: arithmetic operators, manipulation of strings using operators.	2 <sup>nd</sup> Assignment
4.	April	<b>Inheritance:</b> Derived class, base class, Accessing the base class member, Inheritance: multilevel, multiple, hierarchical, hybrid; Virtual base class, Abstract class. Virtual Functions, pure virtual functions; Polymorphism & its types <b>Exception Handling in C++:</b> exception handling model, exception handling constructs - try, throw, catch	UNIT TEST

5	May	Order of catch blocks, Catching all exceptions, Nested try blocks, handling uncaught exceptions.	
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❖ **Two assignments and one unit test will be taken as per schedule.**

**Signature of Teacher**

# GOVT. P.G. COLLEGE FOR WOMEN, PANCHKULA

Session 2025-2026 (EVEN SEMESTER)

NAME OF PROFESSOR: ANITA YADAV  
DESIGNATION: EXTENSION LECTURER  
SUBJECT/PAPER: Programming using Python(B23-CAP-601)  
CLASS: BCA 6<sup>th</sup> SEM

SR. NO.	MONTH	TOPICS TO BE COVERED	REMARKS IF ANY
1.	January	Introduction to Python: Python Interpreter, Python as calculator, Python shell, Indentation, identifier and keywords, literals, strings, Operators: Arithmetic, Relational, Logical, comparison, Bitwise, Assignment, Identity operator and Membership operator; Input & output statements; Control statements: Branching, looping, Conditional statement, Exit function	Group Discussion
2	February	String Manipulations: Subscript operator, indexing, slicing a string, other functions on strings, string module. Strings and number system: Format functions, converting strings to numbers & Vice Versa. List, Tuples, Sets, Dictionaries: Basic list operators, replacing, inserting, removing an element, searching, Sorting lists, dictionary literals, adding & removing keys, accessing & replacing values, traversing dictionaries.	1 <sup>st</sup> Assignment
3.	March	Array in Python, Design with Functions: hiding redundancy, complexity, arguments & return values; Formal/Actual arguments, named arguments, program structure and design, Recursive functions, scope & Global statements, Importing modules, Math modules & Random modules.	2 <sup>nd</sup> Assignment
3.	April	Exception Handling: Exceptions, except clause, try and finally clause, user-defined exceptions. File Handling: Manipulating files & directories, OS & SYS modules, Reading, writing text & numbers from/to file.	UNIT TEST
4.	May	Graphics: "Turtle" module, drawing colors, shapes, digital images, image file formats.	Revision

**TWO ASSIGNMENTS AND ONE UNIT TEST WILL BE TAKEN AS PER SCHEDULE.**

# GOVT. P.G. COLLEGE FOR WOMEN, PANCHKULA

Session 2025-2026 (EVEN SEMESTER)

NAME OF PROFESSOR: ANITA YADAV

DESIGNATION: EXTENSION LECTURER

SUBJECT/PAPER: Advanced Web Development(B23-CAP-602)

CLASS: BCA 6<sup>th</sup> SEM

SR. NO.	MONTH	TOPICS TO BE COVERED	REMARKS IF ANY
1.	January	<b>Advanced Front-End Development:</b> Advanced HTML5 & CSS3: Semantic HTML, CSS Grid and Flexbox, CSS Preprocessors (Sass/LESS) JavaScript ES6+: Advanced JavaScript concepts (Promises, Async/Await), ES6+ features (Arrow functions, Template literals, Destructuring)	Group Discussion
2	February	Front-End Frameworks: Introduction to React, Angular, Component-based architecture, State management with Redux <b>Advanced Back-End Development:</b> Server-Side Programming: Express.js, GraphQL, Middleware, and Authentication (JWT, OAuth)	1 <sup>st</sup> Assignment
3.	March	Database Management: Advanced SQL concepts, NoSQL databases (Firestore), ORMs (Sequelize) <b>Full-Stack Development:</b> Integrating Front-End and Back-End: Building a full-stack application, Handling asynchronous operations, Real-time applications with WebSockets	2 <sup>nd</sup> Assignment
3.	April	<b>Performance Optimization:</b> Code splitting and lazy loading, Caching strategies, Optimizing images and assets <b>Deployment and DevOps:</b> Deployment Strategies: CI/CD pipelines, Containerization with Docker, Deployment platforms (Heroku, AWS, Netlify)	UNIT TEST
4.	May	DevOps and Monitoring: Infrastructure as code (Terraform, Ansible), Monitoring and logging (Prometheus, Grafana)	Revision

TWO ASSIGNMENTS AND ONE UNIT TEST WILL BE TAKEN AS PER SCHEDULE

# GOVT. P.G. COLLEGE FOR WOMEN, SECTOR-14, PANCHKULA

## LESSON-PLAN (Session 2025-26) EVEN SEMESTER

**Name of Teacher:** Anita Soni

**Designation:** Assistant Professor

**Subject/ Paper:** Concepts of Operating Systems

**Class:** BCA I (II Sem)

S. No.	Month	Topics to be covered	Remarks if any
1.	Jan	<b>Introductory Concepts:</b> Operating System, Functions and Characteristics, Historical Evolution of Operating Systems, Operating System Structure. <b>Types of Operating System:</b> Real-time, Multiprogramming, Multiprocessing, Batch processing. <b>Operating System Services:</b> Operating System Interface, Service System Calls, and System Programs. <b>Process Management:</b> Process Concepts, Operations on Processes, Process States, and Process Control Block. Inter-Process Communication.	
2.	Feb	<b>CPU Scheduling:</b> Scheduling Criteria, Levels of Scheduling, Scheduling Algorithms, Multiple Processor Scheduling, Algorithm Evaluation. <b>Synchronization:</b> Critical Section Problem, Semaphores, Classical Problem of Synchronization, Monitors. <b>Deadlocks:</b> Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection and Recovery.	
3.	March	<b>Memory Management Strategies:</b> Memory Management of Single-user and Multiuser Operating Systems, Partitioning, Swapping, Contiguous Memory Allocation, Paging and Segmentation. <b>Virtual Memory Management:</b> Demand Paging, Page Replacement Algorithms, Thrashing	
4.	April	<b>Implementing File System:</b> File System Structure, File System Implantation, File Operations, Type of Files, Directory Implementation, Allocation Methods, and Free Space Management. <b>Disk Scheduling algorithm:</b> SSTF, Scan, C- Scan, Look, C-Look. SSD Management.	
5.	May	Revision	

❖ Two assignments and one unit test will be taken as per schedule.

# GOVT. P.G. COLLEGE FOR WOMEN, SECTOR-14, PANCHKULA

## LESSON-PLAN (Session 2025-26) EVEN SEMESTER

Name of Teacher: Anita Soni

Designation: Assistant Professor

Subject/ Paper: Front End Development

Class: BCA II (IV Sem)

S. No.	Month	Topics to be covered	Remarks if any
1.	Jan	<b>Objects in JavaScript:</b> Introduction to objects, Type of objects in JavaScript, creating objects, Object methods, Constructor function, Prototype in JavaScript, Inheritance using prototype chain. <b>Regular Expressions:</b> Introduction to RegExp, Regular expression usage, Modifiers, RegExp patterns, RegExp methods, String methods for RegExp, Type conversion in JavaScript.	
2.	Feb	<b>Event handling:</b> JavaScript events, Event handler, Event flow, Event bubbling and capturing, Event listeners, Event types. <b>Document Object Model (DOM):</b> Introduction to DOM, Types of DOM, DOM standards and methods, Manipulating documents using DOM, Handling images, Table manipulation, Animation, Node and Node-list handling.	
3.	March	<b>Browser Object Model (BOM):</b> Introduction to BOM, DOM vs BOM differences, Window object and methods, BOM navigator, BOM history, BOM location, BOM timer, Introduction to Cookies, Session and persistent cookies. <b>Form Handling:</b> Introduction to forms, Form processing, Forms object, Accessing data from forms, Form validation, Additional features in forms, Validation APIs.	
4.	April	<b>Introduction to jQuery:</b> jQuery Syntax, jQuery Selectors, jQuery Events, jQuery Effects, jQuery HTML, jQuery Traversing, jQuery AJAX, jQuery Misc.	
5.	May	Revision	

❖ Two assignments and one unit test will be taken as per schedule.

# GOVT. P.G. COLLEGE FOR WOMEN, SECTOR-14, PANCHKULA

## LESSON-PLAN (Session 2025-26) EVEN SEMESTER

**Name of Teacher: Anita Soni**

**Designation: Assistant Professor**

**Subject/ Paper: Software Testing**

**Class: BCA II (IV Sem)**

S. No.	Month	Topics to be covered	Remarks if any
1.	Jan	<b>Introduction:</b> Definition of Software Testing and its Role, Terms: - Failure, Error, Fault, Defect, Bug, Goals of Testing, Principles of Testing, Software Testing Life Cycle, Verification and Validation: - V-testing Life cycle.	
2.	Feb	<b>Types of Testing:</b> Black Box Testing: Overview: What is & When? Techniques: Boundary Value Analysis, Equivalence class testing, Decision Table White Box Testing: What is white box Testing, Need of white box Testing, Classification , Structural : Coverage, Path testing.	
3.	March	<b>Levels of Testing:</b> Unit Testing : Overview, Integration Testing : Overview, Techniques: Graph based & Path based, Functional Testing, System Testing : Overview, Categories: Reliability Security Performance Recovery, Acceptance Testing : Overview, Types of Acceptance Testing.	
4.	April	<b>Test Planning:</b> Preparing a Test plan, Scope management, Decide Test Approach, Setting Up Criteria, for testing, Identifying responsibilities, Staffing, training needs, Resource requirements, Test deliverables, Testing Tasks	
5.	May	<b>Revision</b>	

❖ **Two assignments and one unit test will be taken as per schedule.**

# GOVT. P.G. COLLEGE FOR WOMEN, SECTOR-14, PANCHKULA

## LESSON-PLAN (Session 2025-26) EVEN SEMESTER

Name of Teacher: Dr. Seema

Designation: Assistant Professor

Class: BCA 2<sup>nd</sup> semester

Subject/ Paper: Introduction to Web Technologies (B23-CAP-202)

Type of course( Major/ minor/ VAC/ AEC/SEC/ MDC): Major

S. No.	Month	Topics to be covered	Teaching Learning Strategy	Learning Outcomes of Students	Remarks
1.	JANUARY	Introduction to Internet and World Wide Web (WWW); Evolution and History of World Wide Web	Classroom Interaction using Board Hands On Exploration	Learn the basics of web development	
2.	FEBRUARY	Web Pages and Contents, Web Clients, Web Servers, Web Browsers; Hypertext Transfer Protocol, URLs; Searching, Search Engines and Search Tools. Web Publishing: Hosting website; Internet Service Provider; Planning and designing website; Web Graphics Design, Steps For Developing website	Classroom Interaction using Board  Practical in lab ICT	Understand different types of web pages and websites.	
3.	MARCH	Creating a Website and Introduction to Markup Languages (HTML and DHTML), HTML Document Features & Fundamentals, HTML Elements, Creating Links; Headers; Text styles; Text Structuring; Text color and Background; Formatting text; Page layouts, Images; Ordered and Unordered lists; Inserting Graphics; Table Creation and Layouts; Frame Creation and Layouts; Working with Forms and Menus; Working with Radio Buttons; Check Boxes; Text Boxes, HTML5	ICT	Implement HTML and CSS for web page designing.	
4.	APRIL & MAY	Introduction to CSS (Cascading Style Sheets): Features, Core Syntax, Types, Style Sheets and HTML, Style Rule Cascading and Inheritance, Text Properties, CSS Box Model, Normal Flow Box Layout, Positioning, and other useful Style Properties; Features of CSS3. The Nature of JavaScript: Evolution of Scripting Languages, JavaScript-Definition, Programming for Non-Programmers, Introduction to Client-Side Programming, Enhancing HTML Documents with JavaScript. Static and Dynamic web pages	ICT  Lab work	Understand the design of web crawlers and search engines.	

- ❖ Seminar/Presentation/Assignment/Quiz/Class Test /Mid-Term Exam will be taken as per schedule.

Signature of Teacher

# GOVT. P.G. COLLEGE FOR WOMEN, SECTOR-14, PANCHKULA

## LESSON-PLAN (Session 2025-26) EVEN SEMESTER

Name of Teacher: Dr. Seema

Designation: Assistant Professor

Class: BCA 2<sup>nd</sup> semester

Subject/ Paper: Web Technologies Fundamentals (B23-CAC-204)

Type of course( Major/ minor/ VAC/ AEC/SEC/ MDC): MDC

S. No.	Month	Topics to be covered	Teaching Learning Strategy	Learning Outcomes of Students	Remarks
1.	JANUARY	Introduction to Internet and World Wide Web (WWW); Evolution and History of World Wide Web, Web Pages and Contents, Web Clients, Web Servers, Web Browsers; Hypertext Transfer Protocol, URLs; Searching, Search Engines and Search Tools.	Classroom Interaction using Board Hands On Exploration	Learn the basics of web development	
2.	FEBRUARY	Web Publishing: Hosting website; Internet Service Provider; Planning and designing website; Web Graphics Design, steps for Developing website Creating a Website and Introduction to Markup Languages (HTML and DHTML),	Classroom Interaction using Board  Practical in lab ICT	Understand different types of web pages and websites.	
3.	MARCH	HTML Document Features & Fundamentals, HTML Elements, Creating Links; Headers; Text styles; Text Structuring; Text colour and Background; Formatting text; Page layouts, Images; Ordered and Unordered lists; Inserting Graphics; Table Creation and Layouts; Frame Creation and Layouts; Working with Forms and Menus; Working with Radio Buttons; Check Boxes; Text Boxes, HTML5	ICT	Implement HTML and CSS for web page designing.	
4.	APRIL & MAY	Introduction to CSS (Cascading Style Sheets): Features, Core Syntax, Types, Style Sheets and HTML, Style Rule Cascading and Inheritance, Text Properties, CSS Box Model, Normal Flow Box Layout, Positioning, and other useful Style Properties; Features of CSS3. Introduction to Client-Side Programming	ICT  Lab work	Understand the design of web crawlers and search engines.	

- ❖ Seminar/Presentation/Assignment/Quiz/Class Test /Mid-Term Exam will be taken as per schedule.

Signature of Teacher

# GOVT. P.G. COLLEGE FOR WOMEN, SECTOR-14, PANCHKULA

## LESSON-PLAN (Session 2025-26) EVEN SEMESTER

Name of Teacher: Dr. Seema

Designation: Assistant Professor

Class: BCA 2<sup>nd</sup> semester

Subject/ Paper: Programming Methodologies (B23-CAC-203)

Type of course( Major/ minor/ VAC/ AEC/SEC/ MDC): Minor

S. No.	Month	Topics to be covered	Teaching Learning Strategy	Learning Outcomes of Students	Remarks
1.	JANUARY	<b>Program:</b> Concept of a program, Need for writing programs, Characteristics of a good program, Programming style, Documentation, and Program Maintenance.	<b>Classroom Interaction using Board Hands On Exploration</b>	To understand the concept of problem-solving using algorithms and flowcharts.	
2.	FEBRUARY	<b>Debugging Programs:</b> Syntax Errors, Run-Time Errors, Logical Errors. Process of conceptualizing a solution to a problem and moving from algorithm to programming.	<b>Classroom Interaction using Board Practical in lab ICT</b>	To understand the concept of program and debugging.	
3.	MARCH	<b>General Concepts:</b> Clarity and Simplicity of Expressions, Use of proper names for Identifiers, Comments, Indentation; and Documentation.	<b>ICT</b>	To learn the basic programming constructs.	
4.	APRIL & MAY	<b>Programming Constructs:</b> Sequence, Selection, and Iteration; Simulation (dry run) of the program for better understanding of algorithm; Comparison and Analysis of Algorithms through simulations. <b>Methodologies:</b> Structured programming, Top-down approach, Bottom-up approach, Functional programming, Modular programming, and Object-oriented programming.	<b>ICT Lab work</b>	To understand various programming methodologies  To understand the various programming methodologies by implementing these practically.	

- ❖ Seminar/Presentation/Assignment/Quiz/Class Test /Mid-Term Exam will be taken as per schedule.

Signature of Teacher

# GOVT. P.G. COLLEGE FOR WOMEN, SECTOR-14, PANCHKULA

## LESSON-PLAN (Session 2025-26) EVEN SEMESTER

Name of Teacher: Dr. Seema

Designation: Assistant Professor

Class: BCA 4<sup>th</sup> semester

Subject/ Paper: Data Management with DBMS (B23-CSE-401)

Type of course (Major/ minor/ VAC/ AEC/SEC/ MDC): Major

S. No.	Month	Topics to be covered	Teaching Learning Strategy	Learning Outcomes of Students	Remarks
1.	JANUARY	<b>Basic Concepts:</b> Data, Information, Records, Files, Schema and Instance etc. Limitations of File-Based Approach, Characteristics of Database Approach, Database Management System (DBMS), DBMS Functions and Components, Database Interfaces, Advantages and Disadvantages of DBMS.	<b>Classroom Interaction using Board Hands On Exploration</b>	<b>learn basic concepts of database along with its functions and components</b>	
2.	FEBRUARY	<b>Database Users:</b> Data and Database Administrator, Role and Responsibilities of Database Administrator, Database Designers, Application Developers etc. <b>Database System Architecture:</b> 1-Tier, 2-Tier & Three Levels of Architecture, External, Conceptual and Internal Levels, Schemas, Mappings and Instances, Data Independence – Logical and Physical Data Independence	<b>Classroom Interaction using Board</b>  <b>Practical in lab ICT</b>	<b>understand data models.</b>	
3.	MARCH	<b>Data Models:</b> Hierarchical, Network, and Relational Data Models. <b>Entity-Relationship Model:</b> Entity, Entity Sets, Entity Type, Attributes: Type of Attributes, Keys, Integrity Constraints, Designing of ER Diagram, Symbolic Notations for Designing, ER Diagram <b>SQL:</b> Meaning, Purpose, and Need of SQL, Data Types, SQL Components: DDL, DML, DCL and DQL, Basic Queries, Join Operations and Sub-queries, Views, Specifying Indexes. Constraints and its Implementation in SQL.	<b>ICT</b>	<b>Understand SQL as a query language and Learn the concept of relational algebra and calculus.</b>	
4.	APRIL & MAY	<b>Relational Algebra:</b> Basic Operations: Select, Project, Join, Union, Intersection, Difference, and Cartesian Product, etc. <b>Relational Calculus:</b> Tuple Relational and Domain Relational Calculus. Relational Algebra Vs. Relational Calculus. <b>Relational Model:</b> Functional Dependency, Characteristics, Inference Rules for Functional Dependency, Types of Functional Dependency, Normalization: Benefits and Need of Normalization, Normal Forms Based on Primary Keys- (1NF, 2NF, 3NF, BCNF), Multi-valued Dependencies, 4 NF, Join dependencies, 5 NF, Domain Key Normal Form.	<b>ICT</b>  <b>Lab work</b>	<b>Acquire knowledge of advanced concepts of DBMS Implement the queries based on database management.</b>	

❖ Seminar/Presentation/Assignment/Quiz/Class Test /Mid-Term Exam will be taken as per schedule.

Signature of Teacher

# GOVT. P.G. COLLEGE FOR WOMEN, SECTOR-14, PANCHKULA

## LESSON-PLAN (Session 2025-26) EVEN SEMESTER

Name of Teacher: Reema Gupta

Designation: Assistant Professor

Class: BCA 6<sup>th</sup> semester

Subject/ Paper: Analytics with Python (B23-VOC-305)

Type of course( major/ minor/ VAC/ AEC/SEC/ MDC):VOC

S. No.	Month	Topics to be covered	Teaching Learning Strategy	Learning Outcomes of Students	Remarks
1.	<b>January</b>	Introduction to basic statistics and analysis: Fundamentals of Data Analysis, Statistical foundations for Data Analysis, Types of data, Descriptive Statistics	<b>Classroom Interaction using Board</b>  <b>Hands On Exploration</b>	Learn basic statistics needed for data analytics	
2.	<b>FEBRUARY</b>	Python Libraries: NumPy, Pandas, Matplotlib Correlation and covariance, Linear Regression, Statistical Hypothesis Generation and Testing. Array manipulation using NumPy: NumPy array: Creating NumPy arrays, various data types of NumPy arrays, Indexing and slicing, swapping axes, transposing arrays, data processing using Numpy arrays	<b>Classroom Interaction using Board</b>  <b>Practical in lab</b>  <b>ICT</b>	Use data analysis tools in the pandas library.	

3.	<b>MARCH</b>	<p>Data Manipulation using Pandas: Data Structures in Pandas: Series, Data Frame, Index objects, loading data into Panda's data frame.</p> <p>Working with Data Frames: Arithmetic, Statistics, Binning, Indexing, Reindexing, Filtering, Handling missing data, Hierarchical indexing, Data wrangling: Data cleaning, transforming, merging and reshaping</p>	<b>ICT</b>	Load, clean, transform, merge and reshape data.	
4.	<b>APRIL &amp; MAY</b>	<p>Plotting and Visualization: Using Matplotlib to plot data: figures, subplots, markings, color and line styles, labels and legends, Plotting functions in Pandas: Lines, bar, Scatter plots, histograms, stacked bars, Heatmap</p> <p><b>REVISION</b></p>	<b>ICT</b>  <b>Lab work</b>	Create informative visualization and summarize data sets.	

❖ **Seminar/Presentation/Assignment/Quiz/Class Test /Mid-Term Exam will be taken as per schedule.**

**Signature of Teacher**

**Principal**

## GOVT. P.G. COLLEGE FOR WOMEN, SECTOR-14, PANCHKULA

### LESSON-PLAN (Session 2025-26) EVEN SEMESTER

Name of Teacher: Reema Gupta

Designation: Assistant Professor

Class: BCA 6<sup>th</sup> semester

Subject/ Paper: Basics of Data Science using Python

Type of course( major/ minor/ VAC/ AEC/SEC/ MDC):Minor

S. No.	Month	Topics to be covered	Teaching Learning Strategy	Learning Outcomes of Students	Remarks
1.	<b>January</b>	Introduction to Data Science: Definition, importance, and applications. Overview of Python: Python programming basics, data types, and structures.	<b>Classroom Interaction using Board</b>	Students will be able to understand the fundamental concepts of data science and the role of Python in data analysis.	
2.	<b>FEBRUARY</b>	Introduction to Python Libraries: NumPy, pandas, and matplotlib. Basic Data Manipulation: Reading and writing data files, basic operations with pandas DataFrame. Data Import and Export: Handling CSV, Excel, and other file formats. Data Cleaning Techniques: Handling missing values, duplicates, and data inconsistencies. Data Transformation: Data type conversion, normalization, and scaling. Data Visualization: Creating and customizing plots using matplotlib and Seaborn.	<b>ICT and Using Board</b>  <b>Practical in lab</b>	To learn data cleaning, preparation, and visualization techniques using Python.	

3.	<b>MARCH</b>	<p>Descriptive Statistics: Calculating mean, median, mode, standard deviation, and variance using pandas.</p> <p>Inferential Statistics: Conducting hypothesis testing, t-tests, and chi-square tests.</p> <p>Regression Analysis: Implementing simple linear regression and multiple regression using scikit-learn.</p> <p>Predictive Modeling: Introduction to basic predictive models such as decision trees and logistic regression.</p>	<p><b>ICT and Using Board</b></p> <p><b>Practical in lab</b></p>	To apply statistical analysis and predictive modeling using Python	
4.	<b>APRIL &amp; MAY</b>	<p>Advanced Python Libraries: Exploring advanced pandas, NumPy, and scikit-learn features. Data Analysis Tools: Time series analysis, clustering, and classification using scikit-learn. What-If Analysis Tools: Sensitivity analysis and scenario analysis using Python.</p>	<p><b>Classroom Interaction using Board</b></p> <p><b>Practical in lab</b></p>	To explore advanced Python libraries and data analysis tools.	

❖ **Seminar/Presentation/Assignment/Quiz/Class Test /Mid-Term Exam will be taken as per schedule.**

**Signature of Teacher**

**Principal**

# GOVT. P.G. COLLEGE FOR WOMEN, SECTOR-14, PANCHKULA

## LESSON-PLAN (Session 2025-26) EVEN SEMESTER

Name of Teacher: Reema Gupta

Designation: Assistant Professor

Class: B.Sc.Life Sc. 6<sup>th</sup> semester

Subject/ Paper: Internet & Web Designing (B23-VOC-330)

Type of course( major/ minor/ VAC/ AEC/SEC/ MDC):VOC

S. No.	Month	Topics to be covered	Teaching Learning Strategy	Learning Outcomes of Students	Remarks
1.	<b>January</b>	Internet - concepts , URL,Intranet,Extranet, ISP,VPN,Applications of internet E-commerce,E-Banking,E-learning,E-governance	<b>Classroom Interaction using Board</b>	Analyze web pages and its elements How to use internet and various applications of internet .	
2.	<b>FEBRUARY</b>	WWW,text html,surfing,web browsing,internet addressing,IP address, domain name,search engine,news group,electronic mail,web portal,chat,video conferencing,FTP,Remote login  HTML code-basics,start new line ,paragraph,headings,comments, formatted text,superscript,subscript,colors, margins,font style,list and types,images ,conversion of an image.	<b>Classroom Interaction using Board</b>  <b>Practical in lab</b>	How to surf and use web browser  How to design a web page using HTML How to create a list using HTML  How to add an image in HTML	

3.	<b>MARCH</b>	Static Web page development, tables, forms, add graphics ,create web page, linking ,email links, web custom background and colors, creating animated graphics	<b>ICT</b>	Understanding the various elements used in web designing  Learn about animated graphics	
4.	<b>APRIL &amp; MAY</b>	Dynamic web page development, CSS and its types, Javascript: Basics, functions, User defined functions.  <b>REVISION</b>	<b>ICT</b>  <b>Lab work</b>	Understanding how to design a dynamic web page and able to learn the concepts and syntax of javascript.	

❖ **Seminar/Presentation/Assignment/Quiz/Class Test /Mid-Term Exam will be taken as per schedule.**

**Signature of Teacher**

**Principal**

# GOVT. P.G. COLLEGE FOR WOMEN, PANCHKULA

Session 2025-2026 (EVEN SEMESTER)

NAME OF PROFESSOR: Sapna Malik

DESIGNATION: EXTENSION LECTURER

SUBJECT/PAPER: Cloud Computing

CLASS: BCA (2<sup>nd</sup> sem)

SR. NO.	MONTH	TOPICS TO BE COVERED	REMARKS IF ANY
1.	January	Basic Concepts of Cloud Computing Computer Network Basics. Concepts of Distributed Systems. Concepts of Cloud Computing and its Necessity. Cloud Service Providers in use and their Significance.	Group Discussion
2.	February	Cloud Infrastructure Cloud Pros and Cons. Cloud Delivery Models. Cloud Deployment Models.	1 <sup>ST</sup> Assignment
3.	March	Cloud Storage Management Concept of Virtualization and Load Balancing. Overview on Virtualization used for Enterprise Solutions. Key Challenges in managing Information. Identifying the problems of scale and management in big data.	2 <sup>nd</sup> Assignment
4.	April	Building Cloud Networks Designing and Implementing a Data Center-Based Cloud Installing Open Source Cloud service	UNIT TEST
5	May	Amazon Web Services (AWS). Google Cloud Platform.	

❖ **Two assignments and one unit test will be taken as per schedule.**

**Signature of Teacher**

# GOVT. P.G. COLLEGE FOR WOMEN, PANCHKULA

Session 2025-2026 (EVEN SEMESTER)

NAME OF PROFESSOR: SAPNA MALIK  
DESIGNATION: EXTENSION LECTURER  
SUBJECT/PAPER: Data Structures and Applications(B23-CAP-401)  
CLASS: BCA 4<sup>th</sup> SEM

SR. NO.	MONTH	TOPICS TO BE COVERED	REMARKS IF ANY
1.	January	Data Structure Definition, Data Type vs. Data Structure, Classification of Data Structures, Data Structure Operations, Applications of Data Structures. Algorithm Specifications: Performance Analysis and Measurement (Time and Space Analysis of Algorithms- Average, Best and Worst Case Analysis). Arrays: Introduction, Linear Arrays, Representation of Linear Array in Memory, Two Dimensional and Multidimensional Arrays, Sparse Matrix and its Representation, Operations on Array: Algorithm for Traversal, Selection, Insertion, Deletion and its implementation.	Group Discussion
2	February	String Handling: Storage of Strings, Operations on Strings viz., Length, Concatenation, Substring, Insertion, Deletion, Replacement, Pattern Matching Linked List: Introduction, Array vs. linked list, Representation of linked lists in Memory, Traversing a Linked List, Insertion, Deletion, Searching into a Linked list, Type of Linked List	1 <sup>st</sup> Assignment
3.	March	Stack: Array Representation of Stack, Linked List Representation of Stack, Algorithms for Push and Pop, Application of Stack: Polish Notation, Postfix Evaluation Algorithms, Infix to Postfix Conversion, Infix to Prefix Conversion, Recursion. Introduction to Queues: Simple Queue, Double Ended Queue, Circular Queue, Priority Queue, Representation of Queues as Linked List and Array, Applications of Queue. Algorithm on Insertion and Deletion in Simple Queue	2 <sup>nd</sup> Assignment

		and Circular Queue. Priority Queues.	
3.	April	Tree: Definitions and Concepts, Representation of Binary Tree, Binary Tree Traversal (Inorder, postorder, preorder), Binary Search Trees – Definition, Operations viz., searching, insertions and deletion; Searching and Sorting Techniques, Sorting Techniques: Bubble sort, Merge sort,	UNIT TEST
4.	May	Selection sort, Quick sort, Insertion Sort. Searching Techniques: Sequential Searching, Binary Searching.	Revision

**TWO ASSIGNMENTS AND ONE UNIT TEST WILL BE TAKEN AS PER SCHEDULE.**

# GOVT. P.G. COLLEGE FOR WOMEN, PANCHKULA

Session 2025-2026 (EVEN SEMESTER)

NAME OF PROFESSOR: SAPNA MALIK  
DESIGNATION: EXTENSION LECTURER  
SUBJECT/PAPER: Artificial Intelligence (B23-CAP-603)  
CLASS: BCA 6<sup>th</sup> SEM

SR. NO.	MONTH	TOPICS TO BE COVERED	REMARKS IF ANY
1.	January	Introduction to Artificial Intelligence (AI), Importance of AI, AI and its Related Field, AI Techniques, Criteria for success. Problem Space and Search: Problem as a State Space Search, Production System and its Characteristics, Issues in the Design of the Search Problem.	Group Discussion
2	February	Heuristic search techniques: Generate and test, hill climbing, best first search technique, problem reduction, constraint satisfaction. Knowledge Representation: Definition and Importance of Knowledge, Knowledge Representation, Various Approaches Used in Knowledge Representation, Issues in Knowledge Representation.	1 <sup>st</sup> Assignment
3.	March	Using Predicate Logic: Representing Simple Facts in Logic, Representing Instances and is-a Relationship, Computable Function and Predicate, Natural Language Processing: Introduction, Syntactic Processing, Semantic Processing, Discourse and Pragmatic Processing.	2 <sup>nd</sup> Assignment
3.	April	Learning: Introduction to Learning, Rote Learning, Learning by Taking Advice, Learning in Problem-Solving, Learning from Example-Induction, Explanation-Based Learning.	UNIT TEST
4.	May	Expert System: Introduction, Representing Using Domain-Specific Knowledge, Expert System Shells.	Revision

TWO ASSIGNMENTS AND ONE UNIT TEST WILL BE TAKEN AS PER SCHEDULE

# GOVT. P.G. COLLEGE FOR WOMEN, PANCHKULA

Session 2025-2026 (EVEN SEMESTER)

NAME OF PROFESSOR: SAPNA MALIK  
DESIGNATION: EXTENSION LECTURER  
SUBJECT/PAPER: Computer Graphics (B23-CAP-403)  
CLASS: BCA 4<sup>th</sup> SEM

SR. NO.	MONTH	TOPICS TO BE COVERED	REMARKS IF ANY
1.	January	<b>Introduction:</b> History of Computer Graphics (CG), Applications of Computer Graphics, Components of interactive graphics systems <b>Display devices:</b> Refresh CRT, Color CRT, Plasma Panel displays LCD Panels, Raster-scan System, Random scan System, Graphic software, Input/Output Devices, Tablets	Group Discussion
2	February	<b>Output Primitives:</b> Points and Lines, Line Drawing Algorithms: DDA algorithm, Bresenham's algorithm, <b>Circle drawing Algorithms:</b> Polynomial Method, Bresenham's algorithm. Parametric representation of Cubic Curves, Bezier Curves	1 <sup>st</sup> Assignment
3.	March	<b>2D Transformation:</b> Use of Homogeneous Coordinates Systems, Composite Transformation: Translation, Scaling, Rotation, Mirror Reflection, Rotation about an Arbitrary Point. Clipping and Windowing, Clipping Operations. <b>Line Clipping Algorithms:</b> The Mid-Point subdivision method, Cohen-Sutherland Line Clipping Algorithms, Polygon Clipping, Sutherland Hodgeman Algorithms, Text Clipping.	2 <sup>nd</sup> Assignment
3.	April	<b>3-D Graphics:</b> 3-D object representations, 3-D Transformations: Translation, Rotation, Scaling, Projections, <b>Hidden surface elimination:</b> Back face removal	UNIT TEST

4.	May	Depth Buffer algorithm, Scan-line algorithm, Depth sort algorithm, Shading.	Revision
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**TWO ASSIGNMENTS AND ONE UNIT TEST WILL BE TAKEN AS PER SCHEDULE.**