

**GOVERNMENT COLLEGE FOR GIRLS, PALWAL (KURUKSHETRA)**  
**Session 2024-2025 (ODD SEMESTER)**

**Name of Professor: Dr. SAPNA**

**Designation: Assistant Professor**

**Subject: Office And Spreadsheet Tools Learning**

**Course Code: B23- SEC-10**

**Course Type: SEC**

**Class: BCA/B.SC-Semester I**

**Course Learning Outcomes:**

1. Understand the basic concepts of operating systems
2. Do the basic editing and formatting in a document
3. Create basic spread-sheets for different purposes
4. Create basic presentations for different applications
5. To understand the working of operating system and various office tools practically.

**LESSON PLAN**

S.No.	Date	Topics to be Covered	Remarks, if Any
1.	22-30 July, 2024	Operating system, definition, function, types, basics of operating system	
2.	1-8 August, 2024	User interface, exploring computer icons, taskbar, desktop	
3.	9-17 August, 2024	Using menu and menu selection, managing files, control panel- display properties, add/remove software and hardware	
4.	19-24 August, 2024	Common utilities	
5.	27-31 August, 2024	Word processor- introduction, menu creating, editing, formatting, spell checker, printing, views	
6.	2-7 September, 2024	Tables, Word art, Mail merge, Macros, inserting hyperlink, search for text	Assignment in Week-II
7.	9-14 September, 2024	Page setup, document themes, document style set, header, Footer	
8.	16-21 September, 2024	Spread Sheet : Elements of Electronics Spreadsheet, applications	
9.	24-30 September, 2024	Creating and opening of spreadsheet, Menus, manipulation of cells, enter texts numbers and dates	
10.	1,4,5,7-12, October, 2024	Cell height and widths, copying of cells, Drawing different type of charts	Unit Test in Week-I
11.	14-19 October, 2024	Mathematical, Financial and statistical function, sort and filter data	Assignment in Week-II
12.	21-26 October, 2024	Presentation software: creating , modifying and enhancing a presentation	
13.	4-9 November, 2024	Types of presentation views, using sound, animation	
14.	11-16 November, 2024	Working with object, Printing	Unit Test in Week-I
15.	18-22-November 2024	Revision	

\*Vacation as per university calendar

\*Assignments and unit test will be taken as per schedule

**GOVERNMENT COLLEGE FOR GIRLS,, PALWAL (KURUKSHETRA)**  
**Session 2024-2025 (ODD SEMESTER)**

**Name of Professor: Dr. SAPNA**  
**Subject: Logical Organization Of Computers**  
**Course Type: CC**

**Designation: Assistant Professor**  
**Course Code: B23- CAP-103**  
**Class: BCA-Semester I**

**Course Learning Outcomes:**

1. Understand number systems, error detecting correcting code, and representations of numbers in a computer system.
2. Understand computer arithmetic and Boolean algebra and simplification of Boolean expressions.
3. Understand the working of logic gates and design various combinational circuits using these logic gates.
4. Understand the working of different types of flip-flops and design different types of registers.
5. Understand the practical aspects of the logical organization of computers.

**LESSON PLAN**

S.No.	Date	Topics To Be Covered	Remarks, If Any
1.	22-30 July, 2024	Number Systems: Binary, Octal, Hexadecimal etc.	
2.	1-8 August, 2024	Conversions from one number system to another	
3.	9-17 August, 2024	BCD Number System. BCD Codes: Natural Binary Code Weighted Code, Self Complementing Code, Cyclic Code.	
4.	19-24 August, 2024	Error Detecting and Correcting Codes. Character representations: ASCII, EBCDIC and Unicode.	
5.	27-31 August, 2024	Number Representations: Integer numbers: sign-magnitude, 1's & 2's complement representation. Real Numbers: normalized floating point representations.	
6.	2-7 September, 2024	Binary Arithmetic: Binary Addition, Binary Subtraction, Binary Multiplication, Binary Division using 1's and 2's Complement representations, Addition and subtraction with BCD representations	Assignment in Week-II
7.	9-14 September, 2024	Boolean Algebra: Boolean Algebra Postulates, basic Boolean Theorems, Boolean Expressions	
8.	16-21 September, 2024	Boolean Functions, Truth Tables, Canonical Representation of Boolean Expressions: SOP and POS, Simplification of Boolean Expressions using Boolean Postulates & Theorems	
9.	24-30 September, 2024	Karnaugh-Maps (upto four variables), Handling Don't Care conditions, Logic Gates: Basic Logic Gates – AND, OR, NOT	
10.	1,4,5,7-12, October, 2024	Universal Gates – NAND, NOR, Other Gates – XOR, XNOR etc. Their symbols, truth tables and Boolean expressions	Unit Test in Week-I Assignment in Week-II
11.	14-19 October, 2024	Combinational Circuits: Design Procedures, Half Adder, Full Adder, Half Subtractor, Full Subtractor	
12.	21-26 October, 2024	Multiplexers, Demultiplexers, Decoder, Encoder, Comparators, Code Converters	

13.	4-9 November, 2024	Sequential Circuits: Basic Flip- Flops and their working. Synchronous and Asynchronous Flip –Flops, Triggering of Flip Flops, Clocked RS, D Type, JK, T type and Master-Slave Flip-Flops	
14.	11-16 November, 2024	State Table, State Diagram and State Equations. Flip-flops characteristics & Excitation Tables.	Unit Test in Week-I
15.	18-22-November 2024	Sequential Circuits: Designing registers –Serial-In Serial-Out (SISO), Serial-In Parallel-Out (SIPO), Parallel-In Serial-Out (PISO) Parallel-In Parallel-Out (PIPO) and shift registers	

**\*Vacation as per university calendar**

**\*Assignments and unit test will be taken as per schedule**

**GOVERNMENT COLLEGE FOR GIRLS, PALWAL (KURUKSHETRA)**  
**Session 2024-2025 (ODD SEMESTER)**

**Name of Professor: Dr. SAPNA**  
**Subject: Java OOP Foundations**  
**Course Type: CC**

**Designation: Assistant Professor**  
**Course Code: B23- CAP-301**  
**Class: BCA-Semester III**

**Course Learning Outcomes:**

1. Implement simple Java programs.
2. Implement multiple inheritance using Interfaces
3. Implement Exception Handling and File Handling.
4. Use AWT to design GUI applications.
5. Develop the project using Java

**LESSON PLAN**

S.No.	Date	Topics To Be Covered	Remarks, If Any
1.	22-30 July, 2024	Object Oriented Programming and Java Fundamentals	
2.	1-8 August, 2024	Data types, Type Casting, Looping Constructs.	
3.	9-17 August, 2024	Structure of Java programs	
4.	19-24 August, 2024	Classes and Objects,	
5.	27-31 August, 2024	Interfaces: Interface basics; Defining, implementing,	
6.	2-7 September, 2024	and extending interfaces; Implementing multiple inheritance using interfaces	Assignment in Week-II
7.	9-14 September, 2024	Packages: Basics of packages, Creating and accessing packages, System packages, Creating user-defined packages	
8.	16-21 September, 2024	Exception handling using the main keywords of exception handling: try, catch, throw, throws, and finally	
9.	24-30 September, 2024	Nested try, multiple catch statements, creating user-defined exceptions.	
10.	1,4,5,7-12, October, 2024	File Handling Byte Stream, Character Stream,	
11.	14-19 October, 2024	File I/O Basics, File Operations	Unit Test in Week-I Assignment in Week-II
12.	21-26 October, 2024	AWT and Event Handling: The AWT class hierarchy,	
13.	4-9 November, 2024	Events, Event sources, Event classes, Event Listeners, Relationship between Event sources and Listeners,	
14.	11-16 November, 2024	Delegation event model, Creating GUI applications using AWT.	Unit Test in Week-I

15.	18-22-November 2024	Revision	
-----	------------------------	----------	--

**\*Vacation as per university calendar**

**\*Assignments and unit test will be taken as per schedule**

**GOVERNMENT COLLEGE FOR GIRLS, PALWAL (KURUKSHETRA)**  
**Session 2024-2025 (ODD SEMESTER)**

**Name of Professor: Dr. SAPNA**  
**Subject: Basics of Data Science using Excel**  
**Course Type: CC-M**

**Designation: Assistant Professor**  
**Course Code: B23- CAP-304**  
**Class: BCA-Semester III**

**Course Learning Outcomes:**

1. Understand the fundamental concepts of data science and the role of Excel in data analysis.
2. Learn data cleaning, preparation, and visualization techniques using Excel.
3. Apply statistical analysis and predictive modeling using Excel.
4. To explore advanced Excel functions and data analysis tools.
5. Implement the various functions in Excel

**LESSON PLAN**

S.No.	Date	Topics To Be Covered	Remarks, If Any
16.	22-30 July, 2024	Introduction to Data Science: Definition, importance, and applications.	
17.	1-8 August, 2024	Overview of Excel: Interface, basic functions, and features. Data Types and Formats in Excel: Text, numbers, dates, and custom formats	Assignment in Week-II
18.	9-17 August, 2024	Basic Data Manipulation: Sorting, filtering, and basic formulas (SUM, AVERAGE, COUNT).	
19.	19-24 August, 2024	Data Cleaning Techniques: Handling missing values, duplicates, and errors.	
20.	27-31 August, 2024	Data Transformation: Text-to-columns, concatenation, and data validation.	
21.	2-7 September, 2024	Data Visualization: Creating and customizing charts (bar, line, pie).	
22.	9-14 September, 2024	Descriptive Statistics: Mean, median, mode, standard deviation, and variance.	
23.	16-21 September, 2024	Inferential Statistics: Hypothesis testing, t-tests, and chi-square tests.	
24.	24-30 September, 2024	Regression Analysis: Simple linear regression and multiple regression.	
25.	1,4,5,7-12, October, 2024	Predictive Modeling: Introduction to basic predictive models and their implementation in Excel	Unit Test in Week-I
26.	14-19 October, 2024	Advanced Excel Functions: VLOOKUP, HLOOKUP, INDEXMATCH,	Assignment in Week-II
27.	21-26 October, 2024	PivotTables. Data Analysis ToolPak: Using Excel's built-in data analysis tools such as Descriptive Statistics,.	
28.	4-9 November, 2024	Histograms, Correlation, and Regression.	
29.	11-16 November, 2024	What-If Analysis Tools: Scenario Manager, Goal Seek, and Data Tables	Unit Test in Week-I

30.	18-22-November 2024	Revision	
-----	------------------------	----------	--

**\*Vacation as per university calendar**

**\*Assignments and unit test will be taken as per schedule**

**GOVERNMENT COLLEGE FOR GIRLS, PALWAL (KURUKSHETRA)****Session 2024-2024 (ODD SEMESTER)****Name of Professor: Dr. SAPNA**  
**Subject: MULTIMEDIA TOOLS****Designation: Assistant Professor**  
**Course Code: BCA-356**  
**Class: B.C.A. -Semester V**

S.No.	Date	Topics To Be Covered	Remarks, If Any
1.	22-30 July, 2024	Multimedia: Basic Concept, Definition, Components & Applications of Multimedia	
2.	1-8 August, 2024	Hypermedia and Multimedia; Multimedia Hardware and Software; Multimedia Software Tools; Presentation Tools	
3.	9-17 August, 2024	Multimedia Authoring: Introduction, Features, Types of Authoring Tools: Card or Page-Based, IconBased, Time-Based	
4.	19-24 August, 2024	Object-Oriented; VRML: History, Features	
5.	27-31 August, 2024	Images: Graphics/Image Data Types, File Formats; Color Models in Images and Video;	
6.	2-7 September, 2024	Video: Introduction, Types of Video Signals; Analog and Digital Video; Analog Video Standards: NTSC, PAL, SECA	Assignment in Week-II
7.	9-14September, 2024	Digital Video Standards: Chroma Subsampling, CCIR Standards, HDTV	
8.	16-21 September, 2024	Digital Audio: Basic Concepts, Analog vs. Digital Audio	
9.	24-30 September, 2024	Digitization of Sound; Digital Audio File	
10.	1,4,5,7-12, October, 2024	Formats, MIDIQuantization and Transmission of Audio: Coding of Audio	Unit Test in Week-I
11.	14-19 October, 2024	Pulse Code Modulation; DifferentialCoding of Audio; Lossless Predictive Coding; DPCM; DM; ADPCM	Assignment in Week-II
12.	21-26 October, 2024	Compression Techniques: Introduction, Types of Data Compression, Run-Length Coding,	
13.	4-9 November, 2024	VariableLength Coding, Dictionary-Based Coding, Transform Coding	
14.	11-16 November, 2024	Image and Video Compression Techniques: JPEG Standard for Image Compression; JPEG Mode,	Unit Test in Week-I
15.	18-22-November 2024	Video Compression Techniques: H.261, H.263, MPEG	

**Vacation as per university calendar****\*Assignments and unit test will be taken as per schedule**



**GOVERNMENT COLLEGE FOR GIRLS, PALWAL (KURUKSHETRA)**  
**Session 2024-2024 (ODD SEMESTER)**

**Name of Professor: Dr. SAPNA**  
**Subject: ARTIFICIAL INTELLIGENCE**

**Designation: Assistant Professor**  
**Course Code: BCA-353**  
**Class: B.C.A.-Semester V**

S.No.	Date	TOPICS TO BE COVERED	REMARKS, IF ANY
1.	22-30 July, 2024	Intelligence, AI Concepts, Various definitions of AI, Knowledge	
2. 3.	1-8 August, 2024	Knowledge Pyramid, People and Computers: What computers can do better than people, what people can do better than computers	
	9-17 August, 2024	Characteristics of AI Problems, Problem Representation in AI, Components of AI, AI Evolution, Application Areas of AI, History of AI, The Turing Test, The Revised Turing Test	
	19-24 August, 2024	Expert System: Components of Expert System: Knowledge Base, Inference Engine, User Interface	
	27-31 August, 2024	Features of Expert System, Expert System Life Cycle, Categories of Expert System	
4. 5.	2-7 September, 2024	Rule Based vs. Model Based Expert Systems Advantages/Limitations of Expert System	Assignment in Week-II
	9-14 September, 2024	Developing an Expert System: Identification, Conceptualization, Formalization	
	16-21 September, 2024	Implementation, Testing, Using an Expert System, Application Areas of Expert System	
	24-30 September, 2024	AI and Search Process: Brute Force Search – Depth First/Breadth First Search	
6. 7.	1,4,5,7-12, October, 2024	Heuristic Search: Hill Climbing, Constraint Satisfaction, Mean End Analysis	Unit Test in Week-I
	14-19 October, 2024	Best First Search, A* Algorithm, AO* Algorithm, Beam Search	Assignment in Week-II
	21-26 October, 2024	Natural Language Processing: Introduction, Need, Goal, Fundamental Problems in Natural Language Understanding, How People overcome Natural	
	4-9 November, 2024	Language Problems, Speech Recognition: Introduction, Advantages and Approaches,	
8. 9.	11-16 November, 2024	Introduction to Robotics: Parts of a Robot, Controlling a Robot, Intelligent Robots, Mobile Robots	Unit Test in Week-I
	18-22-November 2024	Revision and Doubt Session	

\*Vacation as per university calendar

\*Assignments and unit test will be taken as per schedule