



PANJAB UNIVERSITY, CHANDIGARH-160014 (INDIA)
(Estd. Under the Panjab University Act VII of 1947—enacted by the Govt. of India)

SYLLABI

FOR

**Undergraduate Programme
Skill Enhancement Courses**

**(offered by Computer Science and Application)
(SEMESTER SYSTEM)**

**EXAMINATIONS, 2025-26
(SEMESTER : FIRST TO THIRD)**

i.e

***First & Third Semester: November/December, 2025
Second Semester: April/May, 2026***

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**SEC Subjects of
Computer Science and Applications**

**Paper Title: Computer Fundamentals and Personal Computing Software
Paper Code: CSA-SEC-101/201/301**

Th Pr Cr
- 3 3

Level: L-100

Time duration :3 hours

Practical External Marks: 65

Practical Internal Marks: 10

Number of Lectures: 90

Objectives: The objective of this course is to familiarize students with the packages commonly used in computing software.

Learning Outcomes:

On successful completion of the course, students will be able to

1. Understand the fundamentals of personal computers, application usage, etc.
2. Get the knowledge of peripherals of personal computer and booting process.
3. Use word processing packages for writing emails, letters, and chapters, etc.
4. Handle statistical data using spreadsheets packages.
5. Design presentations for business analysis, industrial growth, etc.

Unit I

Computer Appreciation: Introduction to Computers Characteristics of Computer, Functional Units of Computer System: CPU, Registers, System Bus, Main Memory Unit, Cache Memory, Inside a Computer SMPS, Motherboard, Ports, and Interfaces Expansion Cards, Ribbon Cables, Memory Chips, Processors, Devices: Input and Output Devices, Keyboard, Mouse, Joystick, Scanner, OCR, OMR, Barcode Reader, Web Camera, Monitor, Printer, Plotter, Types of Software, System and Application Software

Memory: Primary, Secondary, Auxiliary Memory, RAM, ROM, Cache Memory, Hard Disk, Optical Disks, Data Representation, Bit, Byte, Binary, Decimal, Hexadecimal, and Octal Systems

Understanding Graphical User Interface, Using Windows: Booting Process, Fundamentals of Windows, Types of Windows, Anatomy of Windows, Icons, Recycle Bin, Operations on Folders, Registry of Windows, Basics, Editing, Control Panel

Unit II

Word Processing Package: Opening, saving, and closing an existing document; Renaming and deleting files; Using styles and templates: Introduction to templates and styles; Applying, modifying, and creating new (custom) styles; Using a template to create a document, Creating a template, Editing a template, Organizing templates, Examples of styles use, Changing document views, Moving quickly through a document, Working with text: Select, cut, copy, paste, find, and replace, Inserting special characters, Setting tab stops and indents, Checking spelling and grammar, Autocorrect, Using built-in language tools, Word completion, Autotext, Formatting Text: Using Styles, Formatting Paragraphs, Formatting Characters, Auto-Formatting, Creating Lists, Formatting Pages, Using Layout Methods, Creating Headers and Footers, Numbering Pages, Changing Page Margins, Adding Comments to a Document, Creating a Table of Contents, Creating Indexes and Bibliographies, Printing a Document, Using Mail Merge, Tracking changes to a Document, Using Fields, Linking to another part of a Document, Using Master Documents, Creating Fill-in Forms,

Unit III

Spreadsheet Package: Introduction to Spreadsheets, Sheets and Cells, Opening and Saving Spreadsheet Files, Working with Sheets, Inserting New Sheet, Deleting and Renaming Sheets, Viewing a Spreadsheet, Freezing Rows and Columns, Splitting Screen, Entering Data: Cell Referencing, Formatting Cells, Entering Numbers, Entering Numbers as Text, Entering Formulae, Entering Date and Time, Deactivating, Automatic Changes, Speeding Up Data Entry, Using Fill Tool, Fill Series, Defining Fill Series, Validating Cell Contents, Formatting Data, Formatting Text, Numbers, Cells, Autoformatting Cells and Sheets, Defining New Autoformat, Using Conditional Formatting, Data, Sorting Records, Printing a Spreadsheet Document, Using Print Ranges, Page Formats, Inserting Page Breaks, Headers and Footers, Working with Graphs and Charts, Creating Embedded Chart, Formatting Chart, Changing Chart Types, Adding Titles, Legends and Gridlines, Printing Charts, Adding Database Functions, Defining Database Ranges, Sorting, Filtering and Grouping Database Ranges, Evaluating Data: Using Data Pilot, Functions and Macros: Using and Editing Existing Macro, Creating Macros, Recording Macros, Running Macros

Unit IV

Presentation Packages: Introduction to Presentation- Opening New Presentation, Parts of Main Window, Different Presentation Templates, Setting Backgrounds, Selecting Presentation Layouts. Creating a Presentation- Setting Presentation Style, Adding Text to the Presentation. Formatting a Presentation- Adding Style, Colour, Gradient Fills, Arranging Objects, Adding Header and Footer. Slide Background, Slide layout, Adding Graphics to the Presentation Inserting Pictures, Movies, Tables, etc. into Presentation, Drawing Pictures using Draw. Adding Effects to the Presentation Setting Animation and Transition Effect. Printing Handouts Generating Standalone Presentation Viewer.

Note: Any Word Processing, Spreadsheet, and Presentation Package may be used. Focus should be on an Open Source Software's.

Suggested Readings:

1. Basandra, S.K.: Computers Today, Galgotia
2. Sinha, P.K. and Sinha, Priti: Computer Fundamentals, B.P.B Publications
3. Mathur, Rajiv, 1995 : DOS 6.2 Quick Reference Galgotia
4. OOo Authors Team : Getting started with OpenOffice.org, 3.3 Friends of OpenDocument
5. Singleton Roderick G.: OpenOffice.org User Guide

Paper Title: Desktop Publishing using GIMP
Paper Code: CSA-SEC-102/202/302

Th Pr Cr
- 3 3

Level: L-100

Time duration :3 hours

Practical External Marks: 65
Practical Internal Marks: 10

Number of Lectures: 90

Objective: The course will teach students the basics and advance concepts of GIMP. The course will make the students skillful in using GIMP in professional areas like flex designing, image processing, digital photography, desktop publishing, cover design and poster/banner making etc.

Learning Outcome:

After completing this course students will be able to:

1. Understand the basics of image, image formats, and color models.
2. Get a thorough knowledge of GIMP.
3. To use GIMP for desktop publishing.
4. To use GIMP for digital photography.
5. To use the GIMP for image processing and poster/cover/banner design.

UNIT-I

Introduction to GIMP: Downloading and Installing GIMP, Working with GIMP's Interface, Toolbox, Windows and Menus in GIMP, Dockable Dialogs or DockablePanels, Images and Canvases.

Basic Computer Graphics: Digital Images vs. Traditional Photographs, Raster Graphics vs. Vector Graphics, , File Formats, Image basics, Color Depth, Color Spaces and Color Modes, Image Compression, Image resolution, Checking image resolution in GIMP, Resolution for Printed Images, Saving a JPG, PNG, PSD, and TIF File in GIMP, Saving (Exporting) and Reducing JPG File Size.

UNIT-II

Working with Files; Opening Files, Working in the Image Window, Copying and Pasting, Saving Files.

Working with Images: Selection Tools, Image Tools, Transform Tools, Straightening or Rotating an Image, Cropping an Image, Changing the Size of an Image, Paint Tools, Color Tools,

Drawing in GIMP; Tools for Drawing, Drawing with Selections, Drawing Freely,

UNIT-III

Fixing Problems in Images; Analyzing Your Colors with Info Tools, Color Balance, Equalize, White Balance Color Enhance Normalize Stretch Contrast, Stretch HSV, Correcting with Brightness (Contrast), Improving Tones in Images with Levels.

Correcting a Dull Image with Curves, Improving Color and Tone with Curves, Color Too Strong (Oversaturated), Hue-Saturation, Noisy Image Sharpening an Image To Sharpen an Image with Unsharp Mask, Using Brushes to Repair Images, Unwanted Spots or Blotches, Removing Spots with the Smudge Brush, Removing Spots with the Healing Brush.

UNIT-IV

Working with Text; Uses for Text in Images, Adding and Editing Text, Customizing Text from the Text Panel, Making Text Go Along a Path, Using Text to Create a Path.

Working with Layers and Masks; Managing Layers, Layers Dialog, Adding, Duplicating, and Removing Layers, Arranging Layers in the Stack, Grouping and Merging Layers, Manipulating Layers, Resizing Layers, Working with Layer Transparency, Using Layer Masks.

Suggested readings/ references:

1. GIMP for Absolute Beginners by Jan Smith and Roman Joost, Apress
2. GIMP Bible, Jason van Gumster, Robert Shimonski, Wiley Publishing

Paper Title: Backend Web Development
Paper Code: CSA-SEC-103/203/303

Th Pr Cr
- 3 3

Time Duration: 3 Hrs.

Level: L-100

Practical External Marks: 65

Practical Internal Marks: 10

Number of Hours: 90

Course Objective: The course aims to introduce the basic concepts and techniques of server-side web programming. The student shall be able to develop interactive and dynamic websites using HTML, PHP, and MySQL.

Learning Outcome: By the end of this course, students should be able to:

1. Understand the working principles of the internet and its protocols.
2. Build interactive and dynamic websites.
3. Write the server-side programming techniques with PHP for accessing the contents to/from the server
4. Learn to validate server-side/backend data
5. Use GET and POST methods for sending data within the client and server.

Unit-1

Introduction to Internet Technologies: Internet, Internet protocols: TCP/IP, HTTP, DNS, SMTP., IP addressing, Domain Name System (DNS), Hypertext Markup Language (HTML).

Web Programming: JavaScript programming fundamentals, Front-end scripting vs server-side scripting.

Unit-II

Introduction to PHP: Basic Syntax, defining variables and constants, data types, operators and expressions, decision making statements, looping constructs, mixing decisions and looping with HTML

String Handling: Creating a string and accessing its content, searching and replacing the content of a string, formatting a string, and string built-in functions.

Unit-III

Handling HTML Form with PHP: Creating a form, submitting data to the server at the backend using GET and POST methods, GET vs POST methods, create a student registration form and login form using server-side validation.

Unit-IV

Database Connectivity with MySQL: Connectivity with database, database creation, creating tables, insertion and retrieval of the data from the database, and data manipulation.

Recommended Books:

1. "HTML and CSS: Design and Build Websites" by Jon Duckett.
2. "JavaScript and JQuery: Interactive Front-End Web Development" by Jon Duckett.
3. Nixon, R., Learning PHP, MySQL & JavaScript with jQuery, CSS and HTML5, O'Reilly, 2018.
4. Murach J, Murach's, PHP and MySQL, 2nd Edition, Mike Murach & Associates, 2014.
5. Holzner S., PHP: The Complete Reference, McGraw Hill, 2017.

Paper Title: Business Intelligence and Data Visualization
Paper Code: CSA-SEC-104/204/304
(Any Semester)

Th Pr Cr
- 3 3

Level: L-100

Time duration :3 hours

Practical External Marks: 65

Practical Internal Marks: 10

Number of Lectures: 90

Course objectives:

The Course objectives of this course are as follows:

- To understand data and generate insights from it by visualizing it using a range of data visualization tools available.
- To understand large volumes of data, discover trends, communicate effectively with all stakeholders, and influence decisions.
- To develop Business Analytics skillset on how to create effective charts and interactive dashboards, which is extremely useful.

Learning Outcomes:

The Learning Outcomes of this course are as follows:

- After studying this course, students will be able to understand and describe the main concepts of data visualization.
- After studying this course, students will be able to determine the right type of graph for different types of data available or provided through hands-on experience with handling real datasets.
- After studying this course, students will be able to read reports, charts, graphs, figures, maps, and derive meaning from them.
- After studying this course, students will be able to create reports, data visualizations, and dashboards using Power BI and Tableau.
- After studying this course, students will be able to understand how to automate tasks, perform ETL, create data models, perform computations, and present insights using data visualization and dashboards.

Unit 1 (POWER BI) (30 hours)

Data Preparation

- Connecting to different datasets, Basic data prep and model on Power Query, Drill down and Tooltip, AI visuals (Q&A, Analyze, Decomposition).

Data Visualization and Dashboards

- Inbuilt visuals, Custom visuals, Learn from existing reports, Visualization as a Tooltip, Final dashboard – putting it together, Filter, slicer, bookmarks, buttons.

Unit 2 (POWER BI) (30 hours)

Performing Computations

- Combine multiple files and folders, Merge and append, Custom calculations, Conditional columns, Column from examples, Advanced Editor.

DAX

- Introduction to Measures, Calculated Columns vs Quick Measures, Creating a Date Table, Time Intelligence Functions.

Power BI Service

- Publishing to Power BI Service, Power BI data flows, Dashboards and Cross-Reporting.

Unit 3 (TABLEAU) (30 hours)

Visualizations

- Introduction to Dimensions and Measures, Bar Chart, Line Chart, Table, Heat Map, Tree map, Packed Bubble, Tooltip.

Calculations

- Calculated Fields, Parameters, Introduction to Level of Detail (LOD).

Final Dashboard

- Animations, Tooltips, Dashboard, and Stories.

Paper Title: Digital Marketing
Paper Code: CSA-SEC-105/205/305
(Any Semester)

Th Pr Cr
- 3 3

Level: L-100

Time duration :3 hours

Practical External Marks: 65

Practical Internal Marks: 10

Number of Lectures: 90

Course objectives:

The Course objectives of this course are as follows:

- To acquaint the students with the knowledge of growing integration between the traditional and digital marketing concepts and practices in the digital era.
- To familiarize the students with the tools and techniques used by digital marketers for driving marketing decisions to attain marketing objectives.

Learning Outcomes:

The Learning Outcomes of this course are as follows:

- After studying this course, students will be able to understand the concept of digital marketing and its integration with traditional marketing.
- After studying this course, students will be able to understand customer value journey in a digital context and the behavior of online consumers.
- After studying this course, students will be able to understand email, content, and social media marketing and apply the learning to create digital media campaigns.
- After studying this course, students will be able to examine various tactics for enhancing a website's position and ranking with search engines.
- After studying this course, students will be able to leverage digital strategies to gain competitive advantage for business and career.

SYLLABUS

Unit 1: Marketing in the Digital World (20 hours)

- Digital marketing: Concept, Features, Difference between traditional and digital marketing, Moving from traditional to digital Marketing.
- Digital Marketing Channels:
 - o Intent-Based: SEO, Search Advertising
 - o Brand-Based: Display Advertising
 - o Community-Based: Social Media Marketing
 - o Others: Affiliate, Email, Content, Mobile
- Customer Value Journey: 5 As Framework; The Ozone O3 Concept; Key Traits of online consumers.

Unit 2: Content and Email Marketing (16 hours)

- Content Marketing: Step-by-step Content Marketing, Developing a content marketing strategy.
- Email Marketing: Types of Emails in email marketing, Email Marketing best practices.

Unit 3: Social Media Marketing and Display Marketing (24 hours)

- Social Media Marketing: Building a Successful Social Media strategy; Social Media Marketing Channels (Facebook, LinkedIn, YouTube: Concepts and strategies).
- Display Advertising: Working of Display Advertising, Benefits and challenges, Overview of the Display ad Process.
 - Define: Customer, Publisher, Objectives
 - Format: Budget, Media, Ad Formats, Ad Copy.

Unit 4: Search Engine Marketing (20 hours)

- Introduction of SEM: Working of Search Engine; SERP Positioning; Online search behavior, DMI's 5 P Customer Search Insights Model.
- Search Engine Optimization: Overview of the SEO Process; Goal Setting - Types.
- On-Page Optimization: Keyword Research, SEO Process - Site Structure, Content, Technical Mechanics, Headings, Image & Alt text, Social Sharing, Sitemaps, Technical Aspects - Compatibility, Structured Data Markup.
- Off-Page Optimization: Link Formats, Link Building, Content Marketing, Social Sharing; Black and White Hat Techniques.
- Search Advertising: Overview of PPC Process; Benefits of Paid Search; Basis of Ranking; Goal Setting - Objectives;
- Account Setting: Creation of Google Ads, Campaign architecture, Campaign setup, Targeting, Bid Strategy, Delivery, Ad Scheduling, Ad Rotation, Keyword Selection; Ad Copy composition, Ad Extension.

Paper Title: Computer Literacy
Paper Code: CSA-SEC-106/206/306
(Any Semester)

Th Pr Cr
- 6 3

Practical External Marks: 65
Practical Internal Marks: 10

Level: L-100

Time Duration: 3 Hrs.

Number of Hours: 90

Objective: To familiarize learners with fundamentals of computer and its functional components, to impart knowledge about Internet services and security, and to provide practical knowledge of working with the word processing spreadsheet and presentation software

Learning Outcomes:

- i. Understanding of Basic computers
- ii. Knowledge of word processors
- iii. Knowledge of spreadsheet softwares
- iv. Working knowledge of presentation making softwares

Unit I

Basics of Computer: Characteristics and Application of Computer, Types of Software: System and Application Software, Block Diagram of Computer, RAM, ROM, PROM, EPROM, Magnetic Tapes, Magnetic Disk, Input/Output Devices,

Internet: Services, Web Browser, Internet Security: Threats and Preventive Measures.

Unit II

Basics of Word Processing Software: Creating, Opening, Saving and Printing Word Document, Menu Toolbars, Finding and Replacing Text, Spell Check, Auto-Correct, Paragraph and Page Formatting, Bulleted and Numbered Lists, Headers and Footers, Multiple Columns

Working with Tables: Inserting/Creating Table, Adding/Deleting Rows/Columns, Applying Borders, Mail Merge

Unit III

Basics of Spreadsheet Software: Row, Column, Cell, Menus in Worksheet, Creating, Opening, Saving and Printing Worksheet, Formula, Autosum, Autofill, Statistical, Mathematical and String Functions, Data and Time Functions, Trigonometric Functions

Working with Charts: Line Graphs, Pie Chart, Bar Graphs

Unit IV

Basics of Presentation Making: Features of Presentation Software, Selecting Design Templates, Creating, Saving and Printing a Presentation, Views, Adding Pictures, Shapes, Clipart, Audio and Movie. **Animations for Preparing Effective Presentations:** Add Effects, Transition Sounds, Transition Speed

References

1. Basandra, SK, Computers Today's by Galgotia Publications, New Delhi
2. Sinha, PK, Computers Fundamentals by BPB Pubs, New Delhi
3. Rajaraman V, Fundamentals of Computers, PHI, New Delhi
4. Mansfield Ron, Compact Guide to Windows, Word and Excel, BPB Publishers, New Delhi
5. Paul Deitel, Harvey Deitel, Abbey Deitel, Internet and World Wide Web, Pearson Edition
6. Ram Kumar Sinha, Computer and Internet, Pacific Books International

Paper Title: Desktop Publishing Using Photoshop
Paper Code: CSA-SEC-107/207/307
(Any Semester)

Th Pr Cr
- 3 3

Level: L-100

Time Duration: 3 Hrs.

Practical External Marks: 65
Practical Internal Marks: 10

Number of Hours: 90

Note :

- i. The Question Paper will consist of Four Sections.
- ii. Examiner will set total of NINE questions comprising TWO questions from each Section and ONE compulsory question of short answer type covering whole syllabi.
- iii. The students are required to attempt ONE question from each Section and the Compulsory question.
- iv. All questions carry equal marks unless specified.

Objective- The course will teach students the basic and advanced concept of Adobe Photoshop. The course will make the students skillful in using Photoshop in professional areas like Flax Designing, Image Processing, Digital Photography, Desktop Publishing, Cover Design, and Poster/Banner Making, etc.

Learning Outcome:

After completing this course, students will be able to :

1. Understand the basics of image, image formats, and color models
2. Get a thorough knowledge of Adobe Photoshop
3. To use Photoshop for Desktop Publishing
4. To use Photoshop for Digital Photography
5. To use Photoshop for Image Processing and Poster/Cover/Banner Design

Unit I

Adobe Photoshop Graphic Editor Window : Content of Menu Bar, Creating, Opening and Saving and Viewing Document, Toolbar, Palettes and Palette Navigator, Control Panel, Status Bar, Raster Graphic: Image Dimensions and Resolution, Graphic File Formats, Working in Different Dialog Boxes, Settings, Units of Measures, Rulers, Grid, and Guides

Unit II

Working with selections: Using the Quick Selection Tool, Moving a Selected Area, Manipulating Selections, Using the Magic Wand Tool, Selecting with the Lasso Tool, Rotating a Selection, Selecting with the Magnetic Lasso Tool, Selecting from a Center Point

Image Processing: Resizing the Canvas, Resizing and Resizing an Image, Image Cropping, Trim Command, Rotating and Mirroring an Image.

Unit III

Transformation of a selected area: scale and rotate, skew and area distortion, perspective transformation, print transformation

Layer Basics: Palette Layers, Using the Layer Panels, Rearranging Layers, Filtering Layers, Applying a Gradient to a Layer, Applying a Layer Style, Adding an Adjustment Layer, Linked Layers and Layer Sets. Updating Layer Effects, Adding a Border, Flattening and Saving Files, Merging and Deleting Layers.

Unit IV

Text Entering And Editing: Entering Text, Transforming And Editing A Text Block, Editing Text Layers, Positioning Text along An Arbitrary Path

Correction Tools: Blur and Sharpen Tools, Fragment Cloning Tools, Tone Correction of Images: Histogram of the Image, Stretching the Tonal Range, Narrowing the Tonal Range, Tone Curve Correction, Color Models and Modes: Bit Depth of Color, Color Models, Color Modes.

Suggested Readings/References:

1. Iftikhar B. Abbasov, Basics of Graphic Designs in Photoshop 2021
2. Andrej Faulkner and Conrad Chavez, Classroom in a Book, Adopt Photoshop, CC 2018 Release

Paper Title: Fundamentals of Web Designing
Paper Code: CSA-Sec-108/208/308
(Any Semester)

Th Pr Cr
- 3 3

Level: L-100

Time Duration: 3 Hrs.

Practical External Marks: 65

Practical Internal Marks: 10

Number of Hours: 90

Objective: The course enables the students to develop applications using basic technologies such as HTML and JavaScript. The course includes theory as well as practical related to the topics mentioned.

Learning Outcomes:

- i. Knowledge of essential internet services
- ii. Web page development using HTML
- iii. Designing forms in web pages
- iv. Javascript understanding and its use in websites

Unit I

Internet : Introduction, Internet Connection, Searching the Internet, Introduction to Internet Services like FTP, http, E-mail, Telnet Enabling, Disabling, Brief Introduction to TCP/IP, Basics of Web Browsers, and TCP/IP Protocol

Unit II

Introduction to HTML: Concept of Web Server, Static and Dynamic Web Servers, Web Client, Basic HTML Tags and their Uses, Text Formatting Features, Text styles Lists: Unordered, Ordered, and Definition Lists, Images, Tables, Links, Image Maps: Client Side, and Server Side Frames.

Unit III

Forms:Forms Control, Methods: Get and Post Validations

DHTML: Introduction to Cascading Style Sheets (CSS), Style Tag, Link Tag, Types of CSS: In-line, Internal, and External.

Unit IV

Introduction to JavaScript: Embedding JavaScript in Webpages, Basic Programming Techniques, Data Types and Literals, Typecasting, Variables, Arrays, Operators and Expressions, Programming, Constructs, Functions, Dialog Boxes, JavaScript Document, Object Model, Handling of Various Objects like Window, Location, Navigator, History, Document, etc. Handling Webpage Events using JavaScript, Cookies, User-Defined Objects.

Practical Exercises

- Development of Webpages using HTML tags.
- Creation of Webpages showing linkage of images
- Creation of Web pages using Cascading Style Sheets
- Creation of Forms and adding validations to them using JavaScript.

References

1. Bayross, Ivan :HTML, DHTML, JavaScript, BPP
2. Ramalho : Advanced HTML with DHTML, BPB
3. Wagner, Reherd, and R. Allen: JavaScript Unleashed, Techmedia

Paper Title: Application Software for Office Automation
Paper Code: CSA-SEC-109/209/309
(Any Semester)

Th Pr Cr
- 3 3

Level: L-100

Time Duration: 3 Hrs.

Practical External Marks: 65

Practical Internal Marks: 10

Number of Hours: 90

Objective: The main objective of the course is to enable students to get familiar with Application Software for Word Processing, Spreadsheets, Presentation, and Database Management.

Learning Outcome:

On successful completion of the course, the student will be able to,

- Create, store, sort, filter, and print data.
- Manage data in different formats.
- Apply formulae and built-in functions on data.
- Apply data tools to clean data.
- Visualize data using Charts. CO6. Perform what-if analysis.

Unit-I

Word Processing: Opening, Creating, Saving, Printing, and Closing Documents, Using the Interface (Menu Toolbars), Editing text (Copy, Delete, Move), Finding and Replacing Text, Spell Check, Autocorrect, Auto-Text, Character Formatting, Page Formatting.

Document Enhancement: Adding Borders And Shading, Adding Headers and Footers, Setting Up Multiple Columns, Adjusting Margins, and Hyphenating Documents.

Mail Merge: Creating Master Document and Data Sources, Merging and Printing Documents, Inserting Pictures, Tables, Macros, Create, Execute, and Re-Usability Features.

Unit-II

Spreadsheets: Worksheet overview, Row, Column, Cells, Menus, Creating, Opening, Saving and Printing Worksheet, Auto fill, Working with Formulae, Data Formatting (Number Formatting, Data Formatting), Working with Ranges, Absolute, Relative and Mixed Addressing, Creating, Sorting and Filtering Database

Unit -III

Charts: Creating Chart, Adding Titles, Legends, etc. to Charts, Printing Charts; **Macros:** Creating Macros, Recording Macros, Running Macros, Assigning Shortcuts to Macros, Functions (Statistical, Financial Mathematical, String Data and Time).

Presentation Software: Creating, Saving and Printing Presentations, Selecting Design Templates, Inserting Tables and Images, Animations and Transitions, Changing Layout and Background.

Suggested Readings/References:

1. Mansfield Ron: MS Office Data, McGraw Hill
2. Singleton, Roderick G.: OpenOffice.org User Guide
3. Kabir Das, Microsoft Excel: Shortcut Keys and Formulas, Paperback
4. Manish Nigam: Data Analysis with Excel, Paperback, BPP Publications
5. L. Winston Wayne, Microsoft Excel, 2019: Data Analysis and Business Model, Paperback
6. Mali L. Libre, Office 5.1, Rytel, CALS, Math, Formula Book, Volume 1, Notion Press

Paper Title: Python Programming
Paper Code: CSA-Sec-110/210/310
(Any Semester)

Th Pr Cr
- 3 3

Time Duration: 3 Hrs.

Practical External Marks: 65

Practical Internal Marks: 10

Number of Hours: 90

Course Objective

1. To introduce various concepts of programming to the students using Python.
2. To learn the use of functions and dictionaries in Python.

Learning Outcome :

1. Students will understand the concept of Python programming before actually starting to write programs.
2. Students would be able to develop logic for problem solving.
3. Students will learn the basic constructs of programming, such as data, operations, conditions, loops, functions, etc.

Unit I

Introduction: Introduction to the IDLE interpreter (shell) and its documentation, Variables, Basic data type's int, float, Boolean, Built-in function type, Assigning Values to Variables.

Python Basic Syntax: Introduction to Interactive Mode Programming, Script Mode Programming, Python Identifiers, Reserved Words in Python, The Role of Indentation in Python, Comments in Python

Unit II

Operators in Python: Arithmetic, Relational, Logical, Compound Assignment, Increment and Decrement, Conditional or ternary, Bitwise, and Comma Operators Precedence and Order of Evaluation, Statements and Expressions, Automatic and Explicit Type Conversions.

Input-Output Functions: Input/Output with Print and Input Functions. The del (delete) Statement, Introduction to Python Data Types, Python String, List, Tuple, Dictionary Elements within these types Enumerate the Function and Methods of String, Tuple, List, Dictionaries

Unit III

The Conditional Statements in Python: If, If-else, If-elif-else, Python Loops, while-Loop, while-else, for-else, for-Loop, Nested-Loop, The built-in Function range(), Loop Control Statements: the continuous statement loop, the break statement

Functions in Python: Advantages of Functions, Function Parameters, Formal Parameters, Actual Parameters, Global and Local Variables, Introduction to Anonymous Functions.

Unit IV

Dictionaries: Concepts of Key-Value Pairs, Techniques to Create, Update, and Delete Dictionary Items, Gentle Introduction to Object-Oriented Programming with Examples.

Python Data Time: Introduction to Time Module Functions

References

1. Data structure and algorithm using Python, Rance, D., Nicholas, 2016, Willey India edition
2. Data structure and algorithms in Python, Michael T. Goodrich, Robertom, Tamassla, M. H. Goldwasser, 2016, Willey India edition
3. Data structure and algorithm thinking with Python, Narsimha Karumanchi, 2015, Careermonk Publications
4. Fundamentals of Python, Data structure