SEMESTER-I

COURSE 2: Fundamentals of Information Technology & Office Automation

Theory **Credits: 3** **3 hrs/week**

Course Objectives:

1. **Understand foundational computing concepts** including number systems, evolution of computers, and architectural components.
2. **Explore basic computer organization and network fundamentals**, recognizing device functions, system types, and internet components.
3. **Demonstrate proficiency in word processing and presentation tools**, applying formatting techniques and design elements for professional outputs.
4. **Develop competency in spreadsheet operations**, employing formulas, charts, and data-handling techniques.
5. **Apply advanced data modeling and productivity features** to analyze and visualize data efficiently using modern tools.

Course Outcomes:

Learners will be able to:

1. **Convert between binary, decimal, octal, and hexadecimal systems**, and explain computer evolution and generations with examples.
2. Learners will demonstrate **basic blocks of a computer and fundamental networking knowledge.**
3. Create professional-level documents and **design visually appealing presentations** using word processing software and presentation software.
4. Manipulate data within spreadsheets, apply formulas, and **generate accurate summaries and visualizations.**
5. Apply data modelling techniques to **analyze, organize, and represent data effectively** in various scenarios.

Unit-I Number Systems, Evolution , Block Diagram and Generations

Number Systems: Binary, Decimal, Octal, Hexadecimal; conversions between number systems.

Evolution of Computers: History from early mechanical devices to modern-day systems.

Block Diagram of a Computer: Input Unit, Central Processing Unit, Memory Unit, Output Unit.

Generations of Computers: First to Fifth Generation – Technologies, Characteristics, Examples.

Unit-II Basic Organization and Network Fundamentals

Computer Organization: Functional components: Input/Output devices, Storage types, Memory Hierarchy.

Types of Computers: Micro, Mini, Mainframe, and Supercomputers.

Networking Fundamentals: Definition, Need for Networks, **Key Components:** Nodes, Links, Protocols, Networking Devices. **Types of Computer Networks** : LAN, WAN, MAN.

Network Topologies: Bus. Ring, Star, Mesh..

Internet Basics: History, IP Address, URL, WWW, Web browsers, Search engines, E-mail, Internet Security.

Unit-III Word Processing and Presentations

Word Processing Basics: Definition, Using Microsoft Word / Google Docs. Templates for resumes, letters, reports. **Basic text editing and formatting -** Typing and editing text, Font styles, sizes, colors, and effects, Paragraph alignment, indentation, and spacing, Bullets, numbering, and text highlighting, Templates for resumes, letters and reports. **Working with Tables and Graphics -** Inserting and formatting tables, Adding images, shapes, icons, and SmartArt, Text wrapping and positioning graphics.

Document Layout and Design - Page setup, Headers, footers, and page numbering, Section breaks and columns, Applying themes and styles. **Advanced Features -** Spell check and grammar tools, Thesaurus, and Mail merge. **References and Citations** Footnotes, endnotes, and captions, Bibliography and citation tools, Table of contents and index creation.

Presentation Tools: Using PowerPoint/Google Slides – Creating, Saving and Opening presentations, Adding, deleting, and rearranging slides, Slide layouts and design themes, Using templates and master slides, Slide sorter and outline view, Applying transitions and Animations, Design and Layout.

Applications: Creating resumes, Reports, Brochures, and Presentations.

Unit-IV Spread sheet Basics

Spreadsheet Concepts: Understanding rows, columns, cells in tools like MS Excel/Google Sheets, Workbook, Worksheet, **Cell referencing**- Relative, Absolute, Mixed.

Functions and Formulae: Mathematical, Statistical, Logical, Text, Date and Time, Financial.

Lookup and Reference : VLOOKUP, HLOOKUP, XLOOKUP, INDEX, MATCH

Visual representations: Creating a chart, common chart types, Column Chart, Bar Chart, Line Chart, Pie Chart, Scatter Chart, Histogram.

Data Handling: Sorting data, Filtering data, Grouping Data, **Conditional formatting:** Data Bars, Color Scales, Icon Sets, Custom Formulas.

Unit-V Data Modelling

Data Analysis Tools: Pivot Tables and Pivot Charts, Data Validation (Drop-downs, Input Messages, Error Alerts), **What-If Analysis**: Goal Seek, Scenario Manager, Data Tables

Charts and Dashboards: Creating Interactive Dashboards, Using slicers with Pivot Tables ,Combo Charts and Sparklines.

Productivity Tips: Using Named Ranges, Freeze Panes, Split View.

Text Books:

1. **Thareja, R.** (Second Edition). *Fundamentals of Computers*. Oxford University Press.
2. **Rajaraman, V.** (n.d.). *Fundamentals of Computers*. PHI Learning.
3. **Norton, P.** (2017). *Introduction to Computers* (7th ed.). McGraw Hill Education.
4. **Nordell, R., Stewart, K., Easton, A., Graves, P. R., & Triad Interactive, Inc.** (2022). *Microsoft Office 365: In Practice* (1st ed.). New York: McGraw Hill Education.

References Books:

1. **Alexander, M., & Kusleika, R.** (2022). *Microsoft Excel 365 Bible* (2nd ed.). Wiley.
2. **Lowe, D.** (2021). *Networking All-in-One For Dummies* (8th ed.). Wiley.
3. **Microsoft Official Docs and Training**: https://learn.microsoft.com
4. **Google Workspace Learning Center**: https://support.google.com/a/users/

Activities:

Unit 1: Number Systems & Computer Evolution

Outcome: At the End of the Course, The Students will be able to **explain different number systems**, the historical evolution of computers, and identify key components in a block diagram.

Activity: Create a digital poster or infographic comparing number systems (binary, decimal, octal, hexadecimal) and illustrating the timeline of computer generations with key innovations.

Evaluation Method: Rubric-based assessment of the poster presentation on a 10-point scale focusing on:

- Accuracy of number system conversions
- Correct identification of block diagram components
- Visual organization and creativity

Unit 2: Computer Architecture & Networking Basics

Outcome: Learners will demonstrate **basic blocks of a computer and fundamental networking knowledge.**

Activity: Design a concept map showing the internal architecture of a computer and types of networks (LAN, WAN, MAN), including devices and topologies.

Evaluation Method: Checklist-based peer review and instructor validation:

- Completeness of the map
- Correctness of networking concepts
- Use of appropriate terminology
- Logical flow and structure of the map

Unit 3: Word Processing & Presentation Design

Outcome: Learners will create professional-level documents and **design visually appealing presentations** using word processing software and presentation software.

Activity: Prepare a formal report (e.g., project proposal) in a word processor and present it using a slide deck with transitions, embedded media, and design elements.

Evaluation Method: Performance-based evaluation using a 10-point scoring scale:

- Formatting and structure of the document
- Presentation aesthetics and clarity
- Communication skills during presentation

Unit 4: Spreadsheet Analysis & Visualization

Outcome: Learners will manipulate data within spreadsheets, apply formulas, and **generate accurate summaries and visualizations.**

Activity: Analyze a dataset (e.g., student scores or sales data) using spreadsheet software. Apply formulas (SUM, AVERAGE, IF, VLOOKUP) and create relevant charts.

Evaluation Method: Practical test with a rubric:

- Correct use of formulas
- Accuracy of data summaries

Unit 5: Data Analysis and Visualization:

Outcome: Learners will apply data modelling techniques to **analyze, organize, and represent data effectively** in various scenarios.

Activity: Prepare an interactive dashboard for a given data set using EXCEL.

Evaluation Method: Evaluation of the dashboard on a 10-point scoring scale:

- Presentation aesthetics and clarity
- Interactiveness
- Communication skills during presentation

SEMESTER-I

COURSE 2: Fundamentals of Information Technology & Office Automation

Practical **Credits: 1** **2 hrs/week**

List of Experiments:

1. Demonstration of Assembling and Dessembling of Computer Systems.
2. Identify and prepare notes on the type of Network topology of your institution.
3. Prepare your resume in Word by using the Resume template.
4. Using Word, write a letter to your higher official seeking 10-days leave.
5. Create a multi-page academic report and format it using headers and footers. The header will include the document title and author name, while the footer will contain page numbers and the date.
6. Prepare a formal invitation letter and use Mail Merge to personalize it for a list of recipients.
7. Prepare a report that includes: A table summarizing sales data, A graphic (image or chart) illustrating product performance with the proper formatting and alignment of both elements
8. Prepare a document and add Citations, Footnotes, and Bibliography in Word.
9. Create a PowerPoint Presentation on the Role of AI in Business Decision-Making.
10. Using a spreadsheet, prepare your class Time Table.
11. Using a Spreadsheet, calculate the Gross and Net salary of employees(Min 5) considering all the allowances.
12. Generate the class-wise and subject-wise results for a class of 20 students. Also generate the highest and lowest marks in each subject.
13. Using IF, AND, OR, and IFERROR to Automate Grade Evaluation.
    a. Create a table of student scores in different subjects.
    b. Use IF to assign grades (A/B/C/Fail).
    c. Use IFERROR to handle missing scores or invalid data.
14. Consider the problem of preparing a stationary order for the month of March. The item description, quantity and cost per item are available. The total cost per item is to be calculated and the final cost per item involves a sales tax of 2% over the total cost. The gross total and the net total are to be displayed.

Sl. No.	Description	Quantity	Cost Per Item
1	Notepad	202	2.85
2	Writing Pad	86	3.95
3	Ball point pen (Blue)	520	2.50
4	Cello-tape	75	2.95
5	A4 Refill pad	90	5.95
6	Pencils	603	0.50
7	Crayons	80	3.85
8	Stapler	30	9.95

9	Hole punch	25	14.95
10	Ring Binder	45	10.95

15. You are given the order details of a company in the below table.

Order Id	Product	Unit price	Quantity	Discount	Revenue	Tax (2% for each order)	Net Income
11250	A	8	10	0%	?	?	?
11251	B	20.8	1	0%	?	?	?
11252	C	7.7	16	25%	?	?	?
11253	D	15.6	50	0%	?	?	?
11254	E	39.4	15	25%	?	?	?
				Total	?		?

a. Calculate the revenue and tax on the revenue for each product.

b. Calculate the net income of each product.

c. Calculate the total revenue of all products.

d. Calculate the total net income of all products.

16. Create an Excel sheet with the following fields in the Sales table.

i)Month ii) Item iii) Quantity iv) Price v) Commission

Use Data Validation criteria for:

a) Quantity and Price should be whole numbers

b) Commission @3.5% of Price should be allowed only two decimals.

c) Price should accept 5000 and above values only.

17. Consider the problem of finding the total and average marks of five subject marks for five students. Calculate the Maximum mark, minimum mark, mean, median, Standard deviation and Variance for each subject.

Roll. No.	Name	Accounting	Income Tax	Business Law	Total	Average
100	Ramesh	85	75	60	?	?
101	Mahesh	100	78	85	?	?
102	Suresh	65	72	70	?	?
103	Ravi	90	80	85	?	?
104	Raju	80	76	90	?	?

18. The following are the details of Expenditure. Draw a Pie diagram with appropriate Formatting options, including Percentages and chart headings.

Product	Sales
Food	10000
Rent	5000
Clothing	1000
Fee	4000

19. The following are the marks obtained by the students of B. Com. In three subjects.

Roll. No.	Name	Accounts	IT	Economics
2001	Ramesh	65	85	75
2009	Mahesh	88	75	60
2004	Suresh	67	84	35
2002	Ravi	42	85	74
2007	Raju	88	89	90

1. Sort the above table on Roll. No.
2. Using Conditional formatting List out students who scored
    a. Less than 55 in Accounts
    b. More than 75 in IT
    c. Between 60 and 75 in Economics.

20. Prepare Pivot Table for the given data:

Department	Employee Name	Salary
HR	Ramesh	20,000
Finance	Mahesh	18,500
IT	Suresh	17,500
HR	Ravi	13,000
Finance	Raju	15,000
IT	Balu	10,000

21. Employee Database Search Using VLOOKUP, HLOOKUP, XLOOKUP, INDEX, and MATCH

a. Create a database of

employees (Name, ID, Department, Salary).

b. Implement VLOOKUP to search by employee ID.
c. Use HLOOKUP to extract department heads by role.
d. Apply XLOOKUP for more flexible searches.
e. Use INDEX + MATCH as an alternative to VLOOKUP.

22. Sales Report Analysis Using Pivot Tables and Charts

a. Use a dataset of product sales (Product, Region, Date, Quantity, Revenue).
b. Create Pivot Tables to summarize data by region/product.
c. Insert Pivot Charts for visual analysis (e.g., bar, line).
d. Add slicers to make the dashboard interactive.

23. Designing a Data Entry Form with Drop-downs and Input Rules

e. Create a student registration form.
f. Add drop-down lists for course selection using Data Validation.
g. Add input messages to guide users.
h. Add error alerts for wrong entries.

24. Monthly Budget Planning using Goal Seek and Scenario Manager

i. Create a simple personal budget (income, expenses, savings).
j. Use Goal Seek to determine income needed to save a desired amount.
k. Use Scenario Manager to compare different budgeting scenarios (best/ worst/ realistic case).
l. Create a one-variable Data Table to analyze how different expenses affect savings.

25. Consider the monthly sales report

Month	**Region**	**Product**	**Units Sold**	**Unit Price (₹)**	**Total Sales (₹)**
Jan-25	North	Laptop	120	50,000	60,00,000
Jan-25	South	Tablet	80	30,000	24,00,000
Feb-25	North	Laptop	150	50,000	75,00,000
Feb-25	South	Tablet	90	30,000	27,00,000
Mar-25	North	Laptop	100	50,000	50,00,000
Mar-25	South	Tablet	110	30,000	33,00,000

1. Create PivotTables
2. Add Slicers
3. Create Combo Chart
4. Insert Sparklines
5. Assemble Dashboard

Note : The list of experiments is not limited to those mentioned above. A comprehensive set of programming or software tool-based exercises may be developed by the respective faculty members.

SEMESTER-II

COURSE 3: FINANCIAL ACCOUNTING I

Theory **Credits: 4** **4 hrs/week**

Course Objectives
This course is designed to: