



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Computer Application

Choice Based Credit System (CBCS) in the light of NEP-2020

B. C. A. (All Specializations)

SEMESTER-I (2026-27)

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
VOCBCA101	VOC/ SEC-1	Strategic Data Analytics and Collaborative Tools	Max	0	0	0	30	20	0	0	6	3
			Min	0	0		13.5	9				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

COURSE OBJECTIVES:

The student will have ability to:

1. Gain a comprehensive understanding of the Google Workspace ecosystem and open-source alternatives to manage professional documentation and digital documents efficiently.
2. Build a strong foundation in spreadsheet mechanics, data visualization, and analytical tools to process, interpret, and present information accurately.
3. Foster the ability to work in real-time, multi-user environments using cloud-based communication and project management tools to prepare for modern workplace requirements.

COURSE ALIGNMENT WITH UNSDG:

The Course aims to fulfill the United Nations Sustainable Development Goals, **SDG 4 (Quality Education)**.

COURSE OUTCOMES:

After completion of the course, the student will be able to:

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|------------|---|
| CO1 | Demonstrate the ability to produce high-quality documents and collaborative files while managing complex folder structures and sharing permissions within a cloud environment. |
| CO2 | Apply advanced formulas, data validation, and visualization techniques in Google Sheets and open-source software (like Zoho) to solve data-driven problems. |
| CO3 | Leverage Google Analytical tools and AI-supported features (Gemini, Google Lens) to extract insights and automate routine digital tasks. |
| CO4 | Design and execute a capstone project that integrates multiple tools, such as Forms for data collection, Sheets for analysis, and Docs/Slides for reporting, to streamline a real-world workflow. |

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TEACHING PEDAGOGY:

T1 Classroom teaching (white board), Power Point Presentations, Interactive lectures, Inquiry-based teaching

T2 ABL activities, Assignments, Flip Class/ Seminars, Quizzes, Oral Viva-voce examination

ASSESSMENT TOOLS:

ATL1	Quiz
ATL2	Activity Based Learning
ATL3	Midterm Exams
ATL4	Flip Class
ATL5	Seminar Presentation
ATL6	Assignments
ATL7	Poster
ATL8	Oral Viva-voce examination

PREREQUISITES:

There are no formal prerequisites / Basic computer skills, and logical thinking.

SYLLABUS:

Module	Descriptors/Topics	Hours	Assessment Tools
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I	Unit-I - Introduction to Google Workspace & Google Docs ❖ Overview of Google Workspace (Docs, Sheets, Slides, Drive, Gmail, Calendar, Meet, Forms) ❖ Google Account setup, working with multiple Google Drives, Drive folder structure, storage management, sharing permissions (view/comment/edit) ❖ Using Explore tool, Voice typing, Version history ❖ Collaborative editing: real-time co-authoring, comments, suggestion mode, mentions	8	ATL2 ATL3 ATL5 ATL6 ATL8
II	Unit-II - Introduction to Electronic Spreadsheets & Open-Source Alternatives ❖ What is an electronic spreadsheet; evolution from VisiCalc/Lotus 1-2-3 to modern cloud spreadsheets ❖ Spreadsheet terminology: workbook, worksheet, cells, ranges, rows/columns ❖ Open-source & freeware spreadsheet programs — introduction & comparison - - LibreOffice Calc - Apache OpenOffice Calc - G numeric - WPS Office Spreadsheets (freeware tier) - ONLYOFFICE Spreadsheet Editor - Google Sheets (free-tier cloud option) ❖ File formats and interoperability: .ods, .xlsx, .csv — import/export compatibility across tools.	10	ATL2 ATL3 ATL5 ATL6 ATL8
III	Unit-III Spreadsheet Tools – Google Sheets & Alternative Platforms ❖ Google Sheets interface, cell referencing (relative/absolute), basic formulas (SUM, AVERAGE, COUNT, IFS, LAMBDA, XLOOKUP)	10	ATL2 ATL3 ATL5 ATL6

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	❖ Data formatting, conditional formatting, sorting & filtering ❖ Charts and graphs (bar, pie, line); basic pivot tables ❖ Data validation, protecting sheets/ranges ❖ Google Forms integration with Sheets for data collection ❖ Introduction to Gemini Menu (AI Supported tool) ❖ Introduction to alternative spreadsheet & database-spreadsheet tools (any 03 or 04) i. Zoho Sheets — features and comparison with Google Sheets ii. LibreOffice Calc — offline spreadsheet workflows iii. Apache OpenOffice Calc — open-source alternative overview iv. Apple Numbers — interface and cross-platform considerations v. Airtable — spreadsheet-database hybrid, use cases for project tracking vi. Stackby — templates, automation, and API-connected workflows		ATL8
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IV	Unit-IV Communication, Collaboration & Google Analytical Tools - Gmail: filters, labels, advanced search, canned responses - Google Calendar: scheduling, recurring events, appointment slots, sharing calendars - Google Meet: scheduling meetings, screen sharing, recording, breakout rooms - Introduction to Google Collaborative Tools, Integration workflow between Gmail, Calendar, Meet, Chat, and Keep Introduction to Google Analytical Tools - Google Analytics — overview of web traffic analysis, dashboards, and reports - Google Data Studio / Looker Studio — building simple data visualization reports - Google Trends — analyzing search interest data Google Lens - Introduction to visual search and image recognition - Practical uses: text extraction (OCR) from images, translation, object/landmark identification, shopping search	10	ATL2 ATL3 ATL5 ATL6 ATL8
V	Unit-V Google Drive Administration & Applied Project - Advanced Drive: shared drives vs. My Drive, folder permissions, offline access - File organization best practices, storage quota management - Google Apps Script basics (intro-level automation, e.g., auto-email from Sheets) (<i>optional advanced topic</i>) - Data security & privacy settings in Workspace Mini Project: End-to-end use case integrating Docs + Sheets + Slides + Forms + Analytical tools	7	ATL2 ATL3 ATL5 ATL6 ATL8
Total Hours			

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List of Practicals

S No	Practical
1.	Create a formatted resume/report using Docs
2.	Share a document with edit/comment/view access and demonstrate real-time collaboration.
3.	Use Version History to restore a previous document state.
4.	Download Google Drive, upload & download files & folders from the PC.
5.	Work with multiple Google Drive simultaneously.
6.	Create a student marksheet in Google Sheets using formulas (SUM, AVERAGE, IFS for Pass/Fail and Division).
7.	Apply conditional formatting to highlight different parameters.
8.	Generate a chart from sample sales/attendance data; create a basic pivot table.
9.	Create a Google Form and link responses to a Sheet.
10.	Recreate a simple worksheet (e.g., attendance tracker) in Google Sheets / LibreOffice Calc / Zoho Sheets, and compare features.
11.	Work with Xlookup.

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12. Set up email filters and labels for inbox organization.

13. Schedule a recurring event and share a calendar with classmates.

14. Host a Google Meet session with screen sharing (simulate a group discussion).

15. Use Google Lens on a mobile device to extract text from an image and translate it, identify an object/landmark.

16. Organize a shared Drive folder structure for a mock "class project" with permission levels.

17. Set up offline access for a document/spreadsheet.

18. Write a simple Apps Script to auto-send an email when a Form is submitted.

Multifaceted Practical: Create an integrated project -

- 19.
- A Form collects data,
 - Sheet stores/analyses it,
 - Slides present results,
 - Doc compiles a written report.
 - Shared via Drive with proper access control

ADDITIONAL RESOURCES

A. Value addition to course content/ Skill enhancement content:

B. Remedial classes for slow learners:

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As per the AUMP SOP for slow and fast learners.

SUGGESTED READINGS:

Textbooks

1. Pradeep K. Sinha and Priti Sinha, Computer Fundamentals: Concepts, Systems & Applications, BPB Publications, 8th Edition
2. Reema Thareja, Fundamentals of Computers, Oxford University Press India, 3rd Edition.
3. V. Rajaraman and Neeharika Adabala, Fundamentals of Computers, PHI Learning, 6th Edition.
4. Anita Goel, Computer Fundamentals, Pearson India, 1st Edition.
5. Sanjay Saxena, Computer Basics and Office Automation, Vikas Publishing House, 2024 Edition.

Reference Books

1. Ryan Teeter and Karl Barksdale, Google Workspace For Dummies, John Wiley & Sons, 2nd Edition
2. Steven M. Freund, Joy L. Starks, and Eric Schmieder, Shelly Cashman Series Google Workspace: Introductory, Cengage Learning, 1st Edition.
3. Paul McFedries, Google Productivity Tools, Que Publishing (Pearson Education), 1st Edition.
4. Eric Wenke, Google Sheets: The Comprehensive Guide, Rheinwerk Computing, 1st Edition.

Suggested e- resources (Websites/e- books)

1. support.google.com/a/users
2. applieddigitalskills.withgoogle.com

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3. edu.gcfglobal.org

COURSE ARTICULATION MATRIX (MAPPING OF COs WITH POs)

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	L	M	L	L			L	H	H	M	M	L
CO2	M	H	H	L	M		L	M	L	L	M	L
CO3	M	H	H	L	L	L	L	M	L	L	H	M
Co4	M	H	H	H	M	L	H	H	M	L	M	M

H= more than 50% of CO is mapped to particular PO

M= more than 30% and less than 50% of CO is mapped to particular PO

L= Less than 20% of CO is mapped to particular PO

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