

DETAILED SYLLABUS
DIPLOMA IN COMPUTER APPLICATIONS
(DCA)
Effective from JULY-2026



**Makhanlal Chaturvedi National University of
Journalism and Communication, Bhopal**
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SCHEME

DIPLOMA IN COMPUTER APPLICATIONS (DCA)

SEMESTER –I

Subject Code	Subject Name	Credits /Hours			Theory Paper	Practical Exams	Internal Evaluation	Total Marks
		L	T	P				
1DCA1	Computer Fundamentals and AI Concepts	4	1	0	70		30	100
1DCA2	PC Packages and AI Office Tools	4	0	1	70	20	30	120
1DCA3(A) OR 1DCA3(B)	Elective – I Database using MySQL OR Database using MS Access	4	0	1	70	20	30	120
Total Marks					210	40	90	340

Optional-1	Hindi Typing Skill
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(L – Lecture, T-Tutorial P-Practical)

SEMESTER-II

Subject Code	Subject Name	Credits /Hours			Theory Paper	Practical Exams	Internal Evaluation	Total Marks
		L	T	P				
2DCA1	Multimedia and Current IT Trends	4	1	0	70		30	100
2DCA2	Web Technologies and E-Commerce	4	0	1	70	20	30	120
2DCA3(A) OR 2DCA3(B)	Elective – II Digital Media Publishing OR Graphic Design with CorelDRAW	4	0	1	70	20	30	120
Total Marks					210	40	90	340

Optional-2	English Typing Skill
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General Instructions:

1. For passing the subject examination minimum 40% marks must be separately scored in Theory Paper, Practical Exams and Internal Evaluation in the subject.
2. For passing the semester, minimum aggregate marks must be 45% in the semester.

SEMESTER-I

1DCA1-Computer Fundamentals and AI Concepts

Detail Syllabus:

UNIT-I: Computer System Concepts, Applications, Advantage & Disadvantage, Components of a Computer System - Control unit, ALU, Input/Output, Memory, Mother Board, Generations of Computers, Configurations of Computer system, Types of PCs- Desktop, Laptop, Notebook, Palmtop, Supercomputers Characteristics and Area of Uses, Primary Vs Secondary Memory, RAM, ROM, EPROM, PROM. Various Storage Devices- Hard Disk Drives, Zip Drive, Flash drives, Solid-State Drive (SSD).

UNIT-II: Input Devices: Keyboard, Mouse, Joystick, Scanners, Digitizing Tablet, Digital Camera, MICR, OCR, OMR, Light pen, Barcode & Barcode Reader, Quick Response Code (QR Code), Voice Recognition, Touch Screen. Output Devices: Monitors- Characteristics and Types of Monitor, Size, Resolution, Printers and its Types Impact and Non-Impact printer, Dot Matrix, Inkjet, Laser, Plotter, 3D Printers, Sound Card and Speakers,

UNIT-III: Software and its Need, Types of Software- System Software, Application Software, System Software- Operating System- definition & function, Device Drivers & Utility Programs, Introduction to DOS, Windows, Linux, Mac, Android Operating System. Introduction to Programming Languages- Machine, Assembly, High Level, 4GL, Introduction to Assemblers, Compilers and Interpreter. Introduction to Word Processing, Spreadsheet, Presentation Graphics, Data Base Management Software etc. Computer coding system-ASCII, ISCII and Unicode, Number system of computers- Binary, Octal, Decimal, Hexadecimal.

UNIT-IV: Use of communication and IT, Communication Process, Component of Communication- sender, receiver, Transmission Medium & Protocol, Communication Types- Simplex, Half Duplex, Full Duplex. Communication Channels- Twisted, Coaxial, Fiber Optic, Modem-Working and characteristics. Types of Network- LAN, WAN, MAN, Internet, VPN etc., Components of LAN- Media, NIC, NOS, Network devices - Bridges, HUB, Routers, Repeater, Gateways.

UNIT-V: Introduction to AI, History, Definition, and Applications of AI, Types of AI, Definition, Scope, and Goals of AI, History and Evolution of Artificial Intelligence, Advantages and Disadvantages of AI. Exploring AI-powered devices (e.g., Smart Assistants, Image Recognition Tools). Introduction to Machine Learning and its Relationship with AI. AI in the Internet World: Search Optimization, Chatbots, Virtual Assistants, Modern AI Applications: Chatbots, Self-Driving Cars, Voice Assistants. Overview of Microsoft Copilot and Windows AI.

Reference Books:

- Fundamentals of Computers, Paperback by Reema Thareja, Oxford University Press.
- Computer Fundamentals- 6th Edition by Pradeep K. Sinha, Priti Sinha, BPB Publications.
- Computers Today, A. Ravichandran, Khanna Book Publishing.
- Handbook of Computer Fundamentals by Nasib Singh Gill, Khanna Publishers.
- https://cbseacademic.nic.in/web_material/Curriculum25/publication/srsec/843_AI_Student_HandbookXI.pdf

SEMESTER-I

1DCA2 – PC Packages and AI Office Tools

Detail Syllabus:

UNIT-I: Operating System (Windows11): Overview of Windows Operating System, Basic Operations-How to Start a computer, login, logoff, shutdown. Personalizing Desktop-Desktop Background, Screen Saver, Themes, Setting Date & Time, Task Bar, Files & Folders, Create, Copy, Rename, Moving & Delete Files & Folders, Create & Using Shortcuts, Recycle Bin.

Accessories-MS Paint, Notepad, WordPad, Windows Media Player, Calculator, Language Settings-How to Set other languages on computer Using Control Panel to add, Remove Program, Configuring New or Existing Devices, Software and fonts, Enhance the Performance of Computer- Using Disk Clean-up, Using Disk Defragmenter.

Using Internet in Windows: Basic Operations using web browser and its functions, Know about WWW, URL, DNS, Search Engines, Google Maps, Introduction to AI and its Relevance in daily Computing Tasks, Overview of AI Productivity Tools (ChatGPT, Copilot, Gemini, Notion AI)

UNIT-II: Modern office activities and their software requirements, Introduction to Office Automation Suit, Introduction and comparison of various office suites like , OpenOffice, Libre Office, Google Docs & Microsoft office.

MS Word Basics: Introduction to MS Word, Features & Area of use. Various Versions of MS Office and their Requirements, Working with MS Word, Menus & Commands, Ribbon, Toolbars & Buttons, Shortcut Menus, Wizards & Templates, Creating a New Document, Different Page Views and layouts, Applying Various Text Enhancements- Fonts, Styles, Text Attributes, Formatting Text and Documents: Auto format, Paragraph and Page Formatting, Line Spacing, Margins, Borders and Shading, Tabs and Indents, Text Editing using various features, Bullets, Numbering, Working with Styles, Printing & various print options, Spell Check Working with Headers and Footers, Tables: Creating and editing simple table.

Introduction to Google Docs, Smart Compose, AI Summarizer.

UNIT-III: Graphics in MS-word (2019): Importing graphics, Clipart, insert picture, Using Clip Art, Shapes and SmartArt in documents, using drawing features, drawing objects, Text in drawing. Taking and inserting Screenshots in Documents, Using WordArt and Drop Cap features in documents. using templates.

Mail Merge in MS Word, Mail Merge concept, Envelops & Mailing Labels, Importing and exporting to and from various formats, Macros in MS Word: Macro : Introduction and their use, Recording Macros, Editing macros, Running a Macro.

Creating Professional Reports with AI-generated Templates, Using AI tools for grammar checking and content suggestions,

UNIT-IV: MS Excel Spreadsheet (2019), Basics & features, concepts of Workbook & Worksheets, Creating a new worksheet, Using Wizards, Various Data Types, Selecting cells, Entering and editing text, Entering and editing Numbers, Removing & Resizing of Columns & Rows, Entering and editing

Formulas, Referencing cells, Moving Cells, Copying Cells, Sorting Data, Inserting Rows and Columns, Deleting parts of a worksheet, Clearing parts of a worksheet, Different Views of Worksheets.

Formatting: Cell Formatting, Changing Column widths and Row heights, Auto format, Changing font sizes and Attributes, Centering Text across columns, Using border buttons and Commands, Changing Colors and Shading, Hiding Rows and Columns Splitting and Merging, Working with Data & Ranges, Column Freezing, Charts in Excel, Types of charts.

Overview of AI-powered features in Windows (e.g., Copilot) Using AI in Excel: Data Insights, Trend Prediction, Using AI features like “Analyze Data” and ChatGPT for formula Generation.

UNIT-V: MS PowerPoint(2019): Introduction & Area of use, Creating a New Presentation, Using Wizards; Slides & its different Views, Inserting, Deleting and Copying of Slides; Working with Notes, Handouts, Columns & Lists, Adding Graphics, Shapes, Screenshots, Smart Art and charts in Presentation, Sounds and Movies to a Slide; Working with PowerPoint Objects, Slide Show, Change Backgrounds, Change Size, Using Animation and Transitions in Presentation, Printing Presentations.

AI Tools for Presentation Creation (Beautiful.ai, Tome, Canva AI), Generate an AI-based presentation using online tools

Books and References:

- Windows 8.1 In Depth, by Knittel, PEARSON
- Windows 8.1 Plain and Simple by Joli Ballew, Nancy Muir, PHI
- MCSA Microsoft Windows 8.1 Complete Study Guide: Exams 70-687, 70-688, Jeffrey R. Shapiro, Darril Gibson, Wiley India
- Windows 8.1 For Dummies By Andy Rathbone, Wiley India
- Office 2013 in Simple Steps, Kogent Learning Solutions Inc., Wiley India
- Microsoft Office:2013 Edition Inside Out, Bott Ed, Siechert, Carl, Prentice Hall Of India (PHI)
- Learning Microsoft Office 2013, Paperback by Ramesh Bangia, Khanna Book Publishing
- Microsoft Office 2013 : Digital Classroom, Paperback by Walter Holland, ACI Creative Team, WILEY
- Microsoft Learn Portal: *AI Features in Microsoft 365*
- https://cbseacademic.nic.in/web_material/Curriculum25/publication/srsec/843_AI_Student_HandbookXI.pdf

Practical Questions:

Q. Load Microsoft Word & type the following text and do the following tasks:

Television

How does television affect our lives? It can be very helpful to people who carefully choose the shows that they watch. Television can increase our knowledge of the outside world, there are high quality programmes that help us to understand many fields of study, science, medicine, the arts and so on. Moreover, television benefits very old people, who can't often leave the house as well as patients in hospitals. It also offers non native speakers the advantage of daily informal language practice. They can increase their vocabulary and practice listening.

On the other hand, there are several serious disadvantages of television. Of course, it provides us with a pleasant way to relax and spend our free time, but in some countries, people watch the

'blood tube' for an average of six hours or more a day. Many children stare at a television screen for more hours each day than they do anything else including studying & sleeping. It's clear that the tube has a powerful influence on their lives and that its influence is often negative.

1. Save your work as "Television" on Desktop.
2. Set the heading : Font Times New Roman Size 18, align Centre & Bold,
3. Set the remaining text with font Calibri & size 12
4. Underline the heading & change all letters to uppercase
5. Run the spell checker.
6. Apply indentation to the first line of the second paragraph
7. Change the line spacing of the paragraphs to 1.5.
8. Replace the word "screen" with monitor.
9. Apply a 6pt width page border to the document
10. Change the Page orientation to Landscape

Q. Type the given text in similar format using list in the word:

1. Select the first, then hold CTRL whilst selecting the rest
 - Right click on them
 - Double click on them
 - Use the TAB button
2. How do you get capital letters using just one finger?
 - Use the SHIFT LOCK key
 - Use the TAB key
 - Use the ESCAPE key
 - Use the CTRL key
3. What is the short cut for copying data to the clipboard?
 - CTRL + C
 - CTRL + X
 - CTRL + Z
 - CTRL + V

Q. Create a table as shown below.

Student Name		Marks1	Marks2
First Name	Last Name		

1. Enter the detail in the table
2. Insert one row after Marks 2 and name its heading as Total
3. Calculate total of Marks1 & Marks2 and enter in Total Column
4. Bold the Student Name, Marks1, Marks2 ,& Total

Q. Type the following text in Hindi using UNICODE

हँसी शरीर के स्वास्थ्य का शुभ सवांद देने वाली है। वह एक साथ ही शरीर और मन को प्रसन्न करती है। पाचन शक्ति बढ़ाती है, रक्त को चलाती है और अधिक पसीना लाती है। हँसी एक शक्तिशाली दवा है। एक डॉक्टर कहता है कि वह जीवन की मीठी मदिरा है। डॉक्टर ह्यूड कहते हैं कि आनंद से बढ़कर बहुमूल्य वस्तु मनुष्य के पास और कोई नहीं। कार लाइल एक राजकुमार था। संसार त्यागी हो गया था वह कहता है कि जो जी से हँसता है, वह कभी बुरा नहीं होता। जी से हँसो, तुम्हें अच्छा लगेगा। अपने मित्र को हँसाओ, वह अधिक प्रसन्न होगा। शत्रु को हँसाओ, तुम से कम घर्षा करेगा। एक अनजान को हँसाओ, तुम पर भरोसा करेगा। उदास को हँसाओ, उसका दुःख घटेगा। एक निराश को हँसाओ, उसकी आशा बढ़ेगी। एक बूढ़े को हँसाओ, वह अपने को जवान समझने लगेगा। एक बालक को हँसाओ, उसके स्वास्थ्य में वृद्धि होगी। वह प्रसन्न और प्यारा बालक बनेगा। पर हमारे जीवन का उद्देश्य केवल हँसी ही नहीं है, हमको बहुत काम करने हैं। तदपि उन कामों में, कष्टों में और चिंताओं में एक सुंदर आंतरिक हँसी, बड़ी प्यारी वस्तु भगवान ने दी है।

Q. Send a letter to your classmates using mail merge.

Q. Write about introduction of computer and insert pictures related to it.

Q. Open Microsoft Excel and perform the following

- Input experimental data into Microsoft Excel worksheet.
- Properly format and organize data inserted.
- Perform calculations using built-in functions.
- Generate simple and effective tables and graphs
- Integrate both graphs and tables created in MS Excel into MS Word document.

Q. Make Power Point Slides to explain various input devices

Q. Make Power Point Slides to explain various output devices

Q. Make Power Point Slides to show various tourist places of Madhya Pradesh.

Q. Apply text and slide transitions

Q. Insert image & sound file in Presentation

Q. Create a project report using MS Word + AI summarizer

Q. Develop a sales report and analyze it using Excel + AI insights

Q. Prepare a multimedia presentation with AI design tools

Q. Create a student database using MS Access and connect it to Excel

Q. Use AI assistant (ChatGPT/Copilot) to automate office workflows

SEMESTER-I

1DCA3 (B) Database Using MS Access

ELECTIVE-I

Detail Syllabus:

UNIT I: Definition of data and information, Definition, objectives, advantages and limitations of DBMS; comparison with traditional file systems. Types of Databases, Hierarchical, Network, Relational, Object-Oriented, and NoSQL databases, Database Architecture, Data Models, Overview of Entity-Relationship (ER) model, Introduction to Relational Database, Concepts of tables, rows, columns, keys (primary key, foreign key), and constraints. Applications of DBMS. Introduction to MS Access (Objects, Navigation).

UNIT II: Tables in Database, Create a Table in MS Access- Data Types, Field Properties, Fields: names, types, properties- default values, format, caption, validation rules Data Entry, Add record delete record and edit text, Sort, find/replace, filter/ select, rearrange columns, freeze columns. Edit a Tables- copy, delete, import, modify table structure, find, replace.

UNIT III: Working with Query, Setting up Relationships- Define relationships, add a relationship, set a rule for Referential Integrity, change the join type, delete a relationship, save relationship Queries & Filter - difference between queries and filter, filter using multiple fields AND, OR, advance filter Queries, create Query with one table, find record with select query, find duplicate record with query, find unmatched record with query, run query, save and change query.

UNIT IV: Working with Forms, Introduction to Forms Types of Basic Forms: Columnar, Tabular, Datasheet, Main/Subforms, add headers and footers, add fields to form, add text to form use label option button, check box, combo box, list box Forms Wizard, Create Template.

UNIT V: Working with Reports, Introduction to Reports, Types of Basic Reports: Single Column, Tabular Report Groups/Total, single table report, multi table report preview report print report, Creating Reports and Labels, Wizard.

Reference Books:

- MS Office XP complete BPB publication ISBN 8 1-7656-564-4.
- MS Access fast & easy by Faithe Wempen PHI.

Practical Questions:

Q. Create New Database name “**student**” (with relevant data type) and add following records:

Roll_NO	FNAME	SNAME	CITY	COURSE	FEE_DEPOSITED
100	ANIL	VRCE	BHOPAL	DCA	1000.00
101	SUNIL	RANA	DELHI	DCA	500.00
102	MEHUL	KOSHIK	BOMBAY	PGDCA	1500.00
104	MADHURI	CHANDI	PATNA	BCA	1200.00
105	PRMOD	MEHRA	NAGPUR	DCA	2000.00
106	SANDIP	DHEER	NAGPUR	PGDCA	1200.00
107	SHIVANI	VIRAR	SURAT	PGDCA	1000.00
108	KRANTI	NEHRU	DELHI	DCA	500.00
109	MINU	POWAI	BHOPAL	PGDCA	700.00
110	VINOD	SINHA	BHOPAL	BCA	800.00

Perform the following operation on above database:

- To display all records in the database
- To display records based on some conditions
- To display the structure of the database
- To display FNAME and city whose course name is dca
- To delete current record
- To delete records based on some condition
- To delete all the records in current database
- To replace all BOMBAY with MUMBAI
- To give details of FNAME & SNAME having fees deposited between 1400 and 3000.
- Modify the table and add one more field "INSTITUTE_NAME" and fill the data
- Sort/Index with City
- Sort/Index with FNAME & SNAME
- To count the number of records in the database
- To calculate the total fees deposited
- To input records and add them in the database
- Find the name of the student who deposited minimum fees
- To Display the sum of fees deposited by all DCA students
- To Display the sum of fees deposited in each course
- Add one more column “FINE” in table and insert 50 Rs in each record.
- Add one more column “TOTAL” in table and update the table as $TOTAL = FEE_DEPOSITED + FINE$
- Delete the column “TOTAL”
- Create two tables with attribute of your choice and perform the join operation
- Create form to Input data using various controls

SEMESTER-I

Optional-1: Hindi Typing Skill

टाइपिंग परीक्षा के लिए निर्देश

1. DCA के पहले और दूसरे सेमेस्टर में, हिंदी और अंग्रेजी टाइपिंग को पूरी तरह से वैकल्पिक विषय के रूप में शामिल किया गया है।
2. 15 मिनट का टाइपिंग टेस्ट MPOnline के परीक्षा केंद्रों पर आयोजित किया जाएगा।
3. जो छात्र टाइपिंग परीक्षा का विकल्प चुनते हैं, उन्हें परीक्षा फॉर्म भरते समय—DCA के लिए निर्धारित परीक्षा शुल्क के अतिरिक्त—प्रति टाइपिंग परीक्षा ₹250 + 18% GST का शुल्क देना होगा।
4. छात्रों के लिए हिंदी और अंग्रेजी टाइपिंग परीक्षाएं MPOnline के माध्यम से, वर्तमान में निम्नलिखित परीक्षा केंद्रों पर आयोजित की जाएंगी।

State	City	Exam center address
Madhya Pradesh	Bhopal	iON Digital Zone iDZ Prestige 1 Shree Jairam Education Society
Madhya Pradesh	Bhopal	iON Digital Zone iDZ Prestige 2 Shree Jairam Education Society
Madhya Pradesh	Bhopal	iON Digital Zone iDZ RGPM Sankhedi
Madhya Pradesh	Gwalior	iON Digital Zone iDZ Chitoura Road
Madhya Pradesh	Indore	iON Digital Zone iDZ Sri Aurobindo
Madhya Pradesh	Indore	iON Digital Zone iDZ SAGE
Madhya Pradesh	Jabalpur	iON Digital Zone iDZ Gram Raigawan Near Patan Bypass
Madhya Pradesh	Sagar	SSHC Jain Institute of Management and Research
Madhya Pradesh	Sagar	Adina Institute of Science and Technology
Madhya Pradesh	Satna	iON Digital Zone iDZ Karhi Road Amoudha
Madhya Pradesh	Ujjain	iON Digital Zone iDZ Gram Gangedi Near Mahaveer Tapobhumi

5. अंग्रेजी और हिंदी टाइपिंग के लिए न्यूनतम उत्तीर्ण अंक 50% हैं, जिसमें टाइपिंग की गति इस प्रकार होगी।

Hindi Typing	20 NWPM
English Typing	30 NWPM

6. उम्मीदवार की टाइपिंग गति का मूल्यांकन 'नेट वर्ड्स प्रति मिनट' (NWPM) में किया जाएगा। अंक नीचे दी गई तालिका के अनुसार निर्धारित किए जाएंगे।

English	
Typing Speed	Scaled Score
30 – 40 NWPM	50.00 %
41 – 50 NWPM	60.00 %
51 – 60 NWPM	70.00 %
61 – 70 NWPM	80.00 %
71 – 80 NWPM	90.00 %
> 80 NWPM	100.00 %

Hindi – Unicode	
Typing Speed	Scaled Score
20 – 25 NWPM	50.00 %
26 – 30 NWPM	60.00 %
31 – 35 NWPM	70.00 %
36 – 40 NWPM	80.00 %
41 – 50 NWPM	90.00 %
> 50 NWPM	100.00 %

7. यदि कोई उम्मीदवार 50% या उससे अधिक अंक/स्कोर प्राप्त करता है, तो उसे 'योग्य' घोषित किया जाएगा।
8. अध्ययन संस्थान (Study Institute) छात्रों को हिंदी और अंग्रेजी टाइपिंग के लिए तैयार करेगा। अध्ययन संस्थान सेमेस्टर के दौरान टाइपिंग टेस्ट के लिए अभ्यास सत्र आयोजित करेगा।