

**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)<br>OR<br>1DCA3(B) | <b>Elective – I</b><br>Database using MySQL<br>OR<br>Database using MS Access | 4              | 0 | 1 | 70           | 20              | 30                  | 120         |
| <b>Total Marks</b>         |                                                                               |                |   |   | <b>210</b>   | <b>40</b>       | <b>90</b>           | <b>340</b>  |

|            |                    |
|------------|--------------------|
| 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)<br>OR<br>2DCA3(B) | <b>Elective – II</b><br>Digital Media Publishing<br>OR<br>Graphic Design with CorelDRAW | 4              | 0 | 1 | 70           | 20              | 30                  | 120         |
| <b>Total Marks</b>         |                                                                                         |                |   |   | <b>210</b>   | <b>40</b>       | <b>90</b>           | <b>340</b>  |

|            |                      |
|------------|----------------------|
| 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-II

### 2DCA1–Multimedia and Current IT Trends

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#### **Detail syllabus:**

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**UNIT I:** Introduction to Multimedia, Definition and concept, Need of Multimedia, Applications, Multimedia Elements- Text, Images, Sound, Animation and Video, Multimedia Hardware and Software requirement. Making simple Multimedia with PowerPoint.

**UNIT II:** Text and Image, introduction to Text and Image, Typography basics: fonts, styles, formatting, Image types: Raster and Vector, Color models: RGB, CMYK, Image file formats: JPEG, PNG, GIF, TIFF, Image editing techniques: cropping, resizing, retouching, filters, Working with layers, grids, and alignment.

Audio and Video, Basics Audio and Video, Basics of digital audio: frequency, sampling, formats (MP3, WAV), Audio editing techniques: cutting, mixing, adding effects, Video basics: resolution, frame rate, formats (MP4, AVI) Video editing techniques: trimming, transitions, effects, subtitles.

**UNIT III:** Animation and Authoring Tools, Principles of animation (timing, motion, frames), Types of animation: 2D and 3D, Creating interactive presentations and applications.

Advanced Multimedia Applications, Basics of UI/UX design, Compression and streaming techniques, Multimedia project development lifecycle, Introduction to AR/VR and Immersive Media..

**UNIT IV:** Artificial Intelligence (AI) and Machine Learning (ML) : Concepts, types, applications in real-world systems. Expert System, Introduction to Generative AI tools (e.g., ChatGPT, Gemini, Copilot).

Data Science and Big Data Analytics: Data lifecycle, tools, importance in decision-making.

Cloud Computing : Concepts, service models (IaaS, PaaS, SaaS), deployment models (public, private, hybrid).

**UNIT V:** Internet of Things (IoT): Architecture, components, applications (smart homes, healthcare, smart cities).

Blockchain Technology: Basic concepts, working mechanism, applications (cryptocurrency, security).

Cybersecurity Trend : Emerging threats, ethical hacking, data protection techniques.

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#### **Reference Books:**

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- Fundamentals of Information Technology By Alex Leon & Leon, Vikas Publications
- Frontiers Of Electronic Commerce, By-Kalakota, Ravi; Stone, Tom, Whinston, Andrew B, Addison Wesley Publishing Co, ISBN 8178080575
- E-Commerce An Indian Perspective (Second Edition) By Pt Joseph, S.J., Prentice-Hall Of India
- Recent Magazines of Computers and Communication
- Multimedia: Making It Work (4th Edition) By Thyvaughan, Tata Mcgraw Hills
- Multimedia in Action James E Shuman, Vikas Publishing House

## SEMESTER-II

### 2DCA2-Web Technologies and E-Commerce

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#### **Detail syllabus:**

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**UNIT I:** Fundamentals of Web Technologies: Introduction to Internet and World Wide Web, Web browsers and web servers, Client-server architecture, Publishing concepts, Domain Name Registration. Definition of protocol, Role of protocols in network communication, DNS working process, Role of DNS in resolving domain names. Web protocols: HTTP, HTTPS, FTP, Domain names and web hosting,

**UNIT II:** Concept of HTML: Concept of web pages, role of HTML in web development, structure of an HTML document. HTML editors, Tags and attributes, Syntax, Head & Body Sections, Building, Inserting Texts, Images, List & its type, Hyperlinks, Backgrounds and Color Controls, Table Layout and Presentation, Use of Font Size & Attributes, List Types and Its Tags, Use of Frames and Forms.

Introduction to CSS: styling, layouts, responsive design basics.

**UNIT III:** Client-Side and Server Side Technologies : Introduction to JavaScript, Variables, data types, operators, Control structures and functions, Arrays Objects, Events & Document Object Model- onClick, onMouseOver, on Submit, on Focus, on Change, onBlur, onLoad, onUnload, Alerts, Prompts & Confirms. Introduction to AJAX and JSON, Overview of modern front-end frameworks (React, Angular – basic concepts) Introduction to server-side scripting (PHP / Node.js – basics), Database connectivity (MySQL or similar),

**UNIT IV:** Introduction to E-Commerce: Introduction to E-Commerce: concepts, scope, advantages and limitations, E-Commerce models: B2B, B2C, C2C, C2B. E-Business vs E-Commerce, Electronic payment systems: credit/debit cards, net banking, UPI, wallets, E-Commerce security issues and solutions (encryption, SSL, digital signatures), Legal and ethical issues in E-Commerce.

**UNIT V:** E-Commerce Applications and Emerging Trends: E-Commerce website design and development basics, Shopping cart, checkout process, order management, Supply chain and logistics in E-Commerce, Digital marketing: SEO, SEM, social media marketing, Mobile commerce (M-Commerce), Emerging trends: AI in E-Commerce, personalization, chatbots.

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#### **Reference Books:**

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- Level Module - M 1.2 - Internet & Web Page Designing By V.K.Jain – Bpb Publications.
- E-Commerce An Indian Perspective (Second Edition) - By P. T. Joseph, S.J. Prentice-Hall Of India
- Internet For Everyone - Alexis Leon And Mathews Leon, Vikas Publishing House Pvt. Ltd., New Delhi
- Internet For Dummies - Pustak Mahal, New Delhi
- A Beginners Guide To Html Available At: [Http://Www.Ncsa.Uiuc.Edu /General/Internet /Www.htmlprimerall.html](http://Www.Ncsa.Uiuc.Edu /General/Internet /Www.htmlprimerall.html)
- Introduction to JavaScript Available at - [Www.mcu.Ac.In/Javascriptguide.pdf](http://Www.mcu.Ac.In/Javascriptguide.pdf)

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**Practical Questions:**

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- Q1. How to link an image to another page in HTML,
- Q2. How to create a link that opens a new web page window or tab.
- Q3. How to create links to sections on the same page in HTML.
- Q4. Creating images as links with no borders.
- Q5. Creating a link without an underline in HTML.
- Q6. Changing link color when moving mouse over link in HTML.
- Q7. Creating a link to play a sound file in HTML.
- Q8. How to create a link that goes to top of a web page.
- Q9. Creating HTML push button link and creating an HTML back button.
- Q10. How to create a link to automatically run .exe file once downloaded.
- Q11. Creating a mail link on a web page.
- Q12. Write a JavaScript program to validate a login form (username and password).
- Q13. Create a webpage that changes background color on button click using JavaScript.
- Q14. Develop a simple calculator using JavaScript.
- Q15. Create a PHP/Node.js program to display "Hello World" on the browser.
- Q16. Design a basic E-Commerce homepage layout (header, product categories, footer).
- Q17. Create a product listing page with images, price, and "Add to Cart" button.

## SEMESTER-II

### 2DCA3 (A)–Digital Media Publishing Elective-II

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#### **Detail Syllabus**

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**UNIT-I:** Introduction to Desk Top Publishing (DTP), Definition, Need and Area of Application. Use of DTP in Offset Printing & Web Designing, Use of DTP in Publications and Newspaper Printing, Various DTP Software's and its Application Area. Introduction to Offset Printing Technology, Printers, Formatting of a text: Typography, Fonts, Point Size, Spacing, Breaks, Measurements etc.

Types of Printing: Lithography, Flexography, Gravure, Screen Printing, Offset Printing. Print Media & Offset Printing. Terms used in Offset Printing: Bleed, CMYK, Transparent Printouts - Bromide & Film. Halftone, Impression, Saddle Stitch, Perfect Bind, Negative & Positives for Plate were making

**UNIT-II:** Introduction to Adobe Page Maker 7.0, Aldus & Adobe Page Maker, Previous and current versions of Page Maker, Page Maker as a DTP Software, Difference between a Page Maker & Word Processing Software.

Attribute Settings: Tools, Styles, Menus, Templates, Alignments, Grids, Guides etc. Keyboard shortcuts, Templates & its use

Page Layouts– Margins and Page Orientations with various page sizes, Text Editing and Manipulation, Magazine & News Paper Page Layouts

Filters, Import and Export options, Placing of Text and Images, Auto flow and Story Editor, Different Layout views, Control Palette, Layers & its use

Tab setting, Columns & Gutters, Use of Styles, Palettes & Colors, Import & Export of files, Document Setup & Preferences. Master Pages and its use

**UNIT-III:** Adobe Page Maker-Page and document setup, working with rulers, setting the unit measurement, Bullets, Column Balancing, Breaks Arrange, Fill & Stroke Options.

Text Wrapping, Widows & Orphan lines, Revert Command and its use, Using Drop Caps and various style formats, Editing of Graphics and Frames. Defining Styles

OLE & Embedding, Plugins, Mathematic Equation, Table Editor and it use. Polygon Setting & Rounded Corners

Master Pages, Headers & Footers, Frame Options, View Menu Options, Print Setup Options. Paste Multiple & Paste Special.

Managing and Printing Publications – Tiles, multiple copies etc. Various Page Layout Designing Practical's.

**UNIT-IV:** Introduction to Adobe Photoshop, Photoshop Documents, Various Graphic Files and Extensions- JPG, GIF, PNG, TIF, BMP, PSD, CDR, SVG etc., Photoshop Environment.

Graphic Files: Vector Image and Raster Images. Definition, Features, Area of application etc., Advantages and Disadvantages Vector & Raster Graphics, Bitmap Graphics and its qualities

Pixels, Application Programs to work on Vector Graphics and Raster Graphics. Color Modes and Color Models: HSB, RGB, CMYK, Bitmap, Gray Scale, Duotone. Color Mode Conversion.

Image: Image Size and Resolution, Changing Image Size and Resolution, Getting Image from Input Devices, Creating New image in Photoshop.

Using File Browser, Opening and Importing Selecting Image, Adjusting Pixel, Snap command, saving and Loading Selection, Deleting Selection.

**UNIT-V:** Photoshop–Introduction PSD files, Screen and Work Area Interfaces: Menu Bar, Option Bar, Palette, Active Image Area, Tool Box List etc.

Opening a File, Saving a File, Closing a File, Tool: Icons, Name and usage of Each tool, Setting History Option, Basic Image Manipulations, Photoshop Layers & Palettes: Use of Layers, Creating using layer, Using layer palette,

Working with layered Image: Layer and Layer sets, Selecting Layers, Displaying Content of a Layer, Duplicating Layers, Changing Order of Layers, Renaming & Deleting Layers

Filters: Using Filter Gallery, Filter Gallery Dialogue box, Applying and Blending Filters, Choosing various Filter Effects, Masking Tools & Effects, Using Channels.

Introduction to InDesign, Interfaces, Commands & options, inserting text & images, news paper & magazine page designing in InDesign. Introduction to Microsoft Designer and Figma.

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### **Reference Books:**

- Adobe Photoshop 7 by Bpb PUBLISHING
- Adobe Premier Pro Class room in a book, the official training workbook, Adobe at [ptgmedia.pearsoncmg.com](http://ptgmedia.pearsoncmg.com)
- InDesign CS6 in Simple Steps by Kogent Learning Solutions Inc. and Dreamtech Press

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### **Practical Questions:**

- Q. Refer the following points and Design a logo for an organization/company
- Company name is Horizon Communication Ltd. with
  - Design a Logo of a company/organization with tag line – Be connected.
  - You can use symbols which show horizon.
  - Company deals in building networks.
  - Company works for customers in Bhopal only.
  - Company wants to target government and private organizations both.
  - Company wants a coloured logo not black and white.
  - Prepare at least 3 variations of logo.
- Q. Refer the following points and Design a Visiting Card based on following points:
- Design a visiting card for Dinesh Kumar Ahuja who is a managing director of Softech Pvt. Ltd.
  - Company works in the field of web development.
  - Visiting card should contain mobile no. 998—989-9898.
  - Visiting card should contain office address E-3/333 Arera Colony, Bhopal.
  - Visiting card size should 3.5 x 2 inches.

- Cards theme and colour should match the company's work profile.
- Try to prepare at least 4 variations for visiting card.

Q. Prepare Passport size photographs to print on A4 Sheet.

- Passport photograph size – 35 x 45 mm
- Select a photograph and resize it to 35 x 45 mm in passport size photograph style.
- Change the background of photo to plain background.
- Insert name and date on photograph.
- Place 20 photographs in a 4 x 5 pattern to print them on a A4 Sheet.

Q. Colorize a black and white photograph to color.

- Select any black white (old) photograph of your parents or relatives.
- Scan this photograph.
- Colorize the photograph with your imagination.
- Try to match skin tone hair color.
- Try to colorize dress and environment as real as possible.
- Finally save the new image in jpeg format.

## SEMESTER-II

### Optional-2: English Typing Skill

#### Instructions for Typing Examination

- 1) Hindi and English Typing have been included as entirely optional subject in the DCA first and DCA second semesters, respectively.
- 2) Typing test of 15 minutes will be conducted on MPOnline exam centers.
- 3) Students who opt for the Typing examination are required to pay per typing examination fees of ₹250 + 18% GST—in addition to the prescribed examination fees for the DCA—at the time of filling out the examination form.
- 4) The Hindi and English Typing examinations for students will be conducted through MPOnline, at the currently following examination centers.

| 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) The minimum passing marks for English and Hindi typing is 50% with the typing speed as follows.

|                |         |
|----------------|---------|
| Hindi Typing   | 20 NWPM |
| English Typing | 30 NWPM |

- 6) The typing speed of the candidate will be assessed in Net Words Per Minute (NWPM). Marks will be determined as per the table below.

| 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) A candidate will be declared 'qualified' if he/she secures 50% marks/score or more.
- 8) The Study Institute will prepare students for Hindi and English typing. The Study Institute will organize practice sessions for typing tests during the semester.