

**Mahakaushal University,
Jabalpur (M.P.)**



DIPLOMA IN COMPUTER APPLICATION

Syllabus & Prescribed Books

DCA year Examination 2021

DDCA101-T

FUNDAMENTAL OF COMPUTERS

UNIT – I

Brief history of development of computers, Computer system concepts, Computer system characteristics, Capabilities and limitations, Types of computers Generations of computers, Personal Computer (PCs) – evolution of PCs, configurations of PCs- Pentium and Newer, PCs specifications and main characteristics. Basic components of a computer system - Control unit, ALU, Input/output functions and characteristics, memory - RAM, ROM, EPROM, PROM and other types of memory.

UNIT – II

Input/output & Storage Units:-Keyboard, Mouse, Trackball, Joystick, Digitizing tablet, Scanners, Digital Camera, MICR, OCR, OMR, Bar-code Reader, Voice Recognition, Light pen, Touch Screen, Monitors - characteristics and types of monitor -Digital, Analog, Size, Resolution, Refresh Rate, Interlaced / Non Interlaced, Dot Pitch, Video Standard - VGA, SVGA, XGA etc, Printers& types – Daisy wheel, Dot Matrix, Inkjet, Laser, Line Printer, Plotter, Sound Card and Speakers, Storage fundamentals - Primary Vs Secondary Data Storage and Retrieval methods - Sequential, Direct and Index Sequential, SIMM, Various Storage Devices - Magnetic Tape, Magnetic Disks, Cartridge Tape, Hard Disk Drives, Floppy Disks (Winchester Disk), Optical Disks, CD, VCD, CD-R, CD-RW, Zip Drive, flash drives Video Disk , Blue Ray Disc, SD/MMC Memory cards, Physical structure of floppy & hard disk, drive naming conventions in PC. DVD, DVD-RW.

UNIT – III

Software and its Need, Types of Software - System software, Application software, System Software - Operating System, Utility Program, Programming languages, Assemblers, Compilers and Interpreter, Introduction to operating system for PCs-DOS Windows, Linux, File Allocation Table (FAT & FAT 32), files & directory structure and its naming rules, booting process details of DOS and Windows, DOS system files Programming languages- Machine, Assembly, High Level, 4GL, their merits and demerits Software and its types - Word-processing, Spreadsheet, Presentation Graphics, Data Base Management Software, characteristics, Uses and examples and area of applications of each of them, Virus working principles, Types of viruses, virus detection and prevention, viruses on network.

UNIT – IV

Use of communication and IT , Communication Process, Communication types- Simplex, Half Duplex, Full Duplex, Communication Protocols, Communication Channels - Twisted, Coaxial, Fiber Optic, Serial and Parallel Communication, Modem - Working and characteristics, Types of network Connections - Dialup, Leased Lines, ISDN, DSL, RF, Broad band ,Types of Network - LAN, WAN, MAN ,Internet, VPN etc., Topologies of LAN - Ring, Bus, Star, Mesh and Tree topologies, Components of LAN -Media, NIC, NOS, Bridges, HUB, Routers, Repeater and Gateways.

UNIT-V

Computer Applications in Business-Need and Scope, Computer Applications in Project Management, Computer in Personnel Administration, Information System for Accounting-Cost and Budgetary Control, Marketing and Manufacturing, Computer Applications in Materials Management, Insurance and Stock- broking, Production planning and Control, Purchasing, Banking, Credit and Collection, Warehousing. Use of computers in common public services and e-governance.

TEXT & REFERENCE BOOKS :

1. AnuragSeetha, "Introduction to Computers and InformationTechnology", Ram Prasad & Sons, Bhopal.
2. S.K.Basandra, "Computers Today ", Galgotia Publications. Alexis Leon & Mathews Leon, " Fundamentals of Information technology ", Vikas Publishing House, New Delhi.

DDCA102-T

PC PACKAGES (WINDOWS, MS WORD, MS EXCEL, MS POWER POINT)

UNIT-I

Office Packages-Office activities and their software requirement, word Processing, spreadsheet, presentation graphics, database, introduction and comparison of various office suites like MS office, Lotus Office, Star Office, Open Office etc. MS Word Basics: Introduction to MS Office; Introduction to MSWord; Features & area of use. Working with MS Word.; Menus & Commands; Toolbars & Buttons; Shortcut Menus, Wizards & Templates; Creating a New Document; Different Page Views and layouts; Applying various Text Enhancements; Working with – Styles, Text Attributes; Paragraph and Page Formatting; Text Editing using various features ; Bullets, Numbering, Auto

formatting, Printing & various print options

UNIT-II

Advanced Features of MS-Word: Spell Check, Thesaurus, Find & Replace; Headers & Footers ; Inserting – Page Numbers, Pictures, Files, Autotexts, Symbols etc.; Working with Columns, Tabs & Indents; Creation & Working with Tables including conversion to and from text; Margins & Space management in Document; Adding References and Graphics; Mail Merge, Envelops & Mailing Labels.

UNIT - III

MS Excel: Introduction and area of use; Working with MS Excel.; concepts of Workbook & Worksheets; Using Wizards; Various Data Types; Using different features with Data, Cell and Texts; Inserting,Removing& Resizing of Columns & Rows; Working with Data & Ranges; Different Views of Worksheets; Column Freezing, Labels, Hiding, Splitting etc.; Using different features with Data and Text; Use of Formulas, Calculations & Functions; Cell Formatting including Borders & Shading; Working with Different Chart Types; Printing of Workbook & Worksheets with various options.

UNIT - IV

MS PowerPoint: Introduction & area of use; Working with MS PowerPoint; Creating a New Presentation; Working with Presentation; Using Wizards; Slides & its different views; Inserting, Deleting and Copying of Slides; Working with Notes, Handouts, Columns & Lists; Adding Graphics, Sounds and Movies to a Slide; Working with PowerPoint Objects; Designing & Presentation of a Slide Show; Printing Presentations, Notes, Handouts with print options.

UNIT-V

Outlook express: Setup email account with outlook, sending and receiving mail through outlook, concepts of CC and BCC, forwarding mail, Draft messages, formatting e-mail message, Concept of MIME Protocol, attaching files and items into messages, inserting hyperlink using

outlook editor creating and using send and receive groupemails, opening received messages, opening messages with attachment, replying to mail forwarding messages flagging for further action, setting email options, managing contacts with outlook, Setting up multiple email accounts on single machine.

Text & Reference Books:

1. Windows XP Complete Reference. BPB Publications
2. MS Office XP complete BPB publication
3. MS Windows XP Home edition complete, BPB Publications
4. I.T. Tools and Applications, A. Mansoor, Pragma Publications

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DDCA103-T MS-ACCESS

UNIT I

Introduction to database -What is a Database , Why use a Relational Database, Overview of database design -Data Normalization(Determining tables, Determining Fields, Determining Relationships)Integrity Rules (Primary/Foreign Key, One-to-Many, Many-to-Many, One-to-One) Introduction to MS Access (Objects, Navigation).

UNIT II

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, re-arrange columns, freeze columns . Edit a Tables- copy, delete, import, modify table structure find replace.

UNIT III

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

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

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

Text & Reference Books:

1. Ms Office XP complete BPB publication ISBN 81-7656-564-4
2. Ms Access 2002 fast&easy by FaitheWempen PHI .ISBN 81-203- 1893-5

DDCA104-T

IT TRENDS AND TECHNOLOGIES

UNIT -I

E-governance, e-democracy, Government efforts to encourage citizen participation, PPP model, E-governance websites & services, MPO ONLINE services, UIDI & A adhar, E-governance mobile apps like UMANG, digital locker, digital library. various site for e-governance .National E-Governance Plan (Ne GP). Introduction to cybercrime, types of attacks like Spyware, Malware, Spam Mail, Logic bombs, Denial of Service, Types of Cyber Crime : Email Fraud, Phishing, Spoofing, Hacking, Identity Theft.

UNIT-II

E-Commerce- Introductions, Concepts, Advantages and Disadvantages, Technology in E-Commerce, Benefits and Impact of E-Commerce Electronic Payment Systems: Introduction, Types of Electronic Payment Systems, RTGS, IMPS, NEFT, Payment Gateway, Debit & Credit Card, Internet Banking, Mobile Wallet, UPI, BHIM, PAYTM app, Online Shopping, Online Marketing.

UNIT-III

Introduction to Wireless Communication, Blue Tooth, WiFi, WiMax, LiFi, Mobile Technology, 2G, 3G, 4G, 5G services, IMEI, SIM, IP Telephony, Soft Phone, Voice Mail, Ad-hoc & Sensor Networks, GIS, ISP, Mobile Computing, Cellular System Cell, Mobile Switching Office, Handoff, Base Station. Mobil (Symbian/Blackberry/Windows/Android/iPhone), Features and limitations, Types of Mobile apps.

UNIT - IV

Artificial Intelligence and Expert system- Concepts of AI & Expert Systems, Merits and Demerits of Expert system, Application of Expert system and AI. Cloud Computing- Introduction, Types, Application, Services, Google Play Store, Apple Store, Need of Cloud Computing, Concept of Virtualization, Cloud Types, Cloud Services IOT- Introduction, Application & Use, Machine Learning: Introduction and Uses. Big data- Introduction, Application & Use.

UNIT-V

Introduction to Distributed system, Advantage and Disadvantage of Distributed System, Introduction to Virtual Reality and multimedia: Introduction, Brief History of Virtual Reality, Present Uses of v Virtual Reality, Various Software of Multimedia.

Reference Books:-

- Fundamentals of Information Technology by Alex Leon & M Leon, Vikas Publications.
- Frontiers of Electronic Commerce, by-
Kalakota Ravi; Stone, Tom.
- E-
Commerce an Indian Perspective (Second Edition) by Pt Joseph, S.J
.Prentice-Hall of India.
- Recent Magazines of Computers and Communication. System Analysis & Design by VK Jam, Dreamtech P
ress.
- Modern System Analysis & Design by A Hoffer, F George, S Vala
ciah, Low Priced Edn. Pearson Education.
- Information Technology & Computer Applications by VK. Kapoor, Su
ltan Chand & Sons, New Delhi.
- IT Trends & Technologies by Narendra Tiwari Publisher: Narendra Publ
ication
- The Inevitable: Understanding the 12 Technological For
ces That Will Shape Our Future by Kevin Kelly
Publisher: Viking
- Information Technology: Emerging Trends by Sunil V. K. Gadda
m Publisher: Vitasta Publishing Pvt. Ltd

DDCA105-T

INTERNET AND WEB PAGE DESIGNING

UNIT-I

Introduction to Internet and World Wide Web:-Overview of the Internet and its history, Understanding the World Wide Web (WWW), Internet protocols and standards.

UNIT-II

HTML and CSS Fundamentals:-Introduction to Hyper TextMarkup Language (HTML), Basic structure and elements of HTML, Cascading Style Sheets (CSS) for web page styling.

UNIT - III

Web Page Layout and Design Principles:-Principles of effective web page layout , Responsive web design techniques, User experience (UX) and user interface (UI) design considerations.

UNIT-IV

JavaScript and Client-Side Scripting:-Introduction to JavaScript programming language, Adding interactivity to web pages, DOM manipulation and event handling.

UNIT-V

Web Development Tools and Trends:-Introduction to web development frameworks (e.g., Bootstrap), Content management systems (CMS) and their significance, Emerging trends in web development (e.g., Progressive Web Apps).

Textbook Recommendation:-

"The Internet Book: Everything You Need to Know About Computer Networking and How the Internet Works" by Douglas E. Comer, "HTML and CSS: Design and Build Websites" by Jon Duckett, "Don't Make Me Think, Revisited: A Common Sense Approach to Web Usability" by Steve Krug, "JavaScript and JQuery: Interactive Front-End Web Development" by Jon Duckett, "Learning Web Design: A Beginner's Guide to HTML, CSS, JavaScript, and Web Graphics" by Jennifer Niederst Robbins.

DDCA106-T
DESKTOP PUBLISHING (PAGE MAKER, PHOTOSHOP)

UNIT-I

Introduction to Desktop Publishing:-Overview of desktop publishing concepts and history, Understanding the role of desktop publishing in modern communication, Introduction to desktop publishing software.

UNIT-II

Typography and Text Formatting:-Fundamentals of typography and typefaces, Principles of effective text formatting, Using typography to enhance readability and visual appeal.

UNIT-III

Layout Design Principles:-Basic principles of layout design, Grid systems and page organization, Balancing text and images in layouts.

UNIT-IV

Image Editing and Graphics Integration:-Introduction to image editing software (e.g., Adobe Photoshop), Techniques for enhancing and manipulating images, Integrating graphics into desktop publishing projects.

UNIT - V

Printing and Publishing Process:-Understanding the printing process and terminology, Preparing files for print production, Digital publishing options and considerations.

Textbook Recommendation:-

"The Internet Book: Everything You Need to Know About Computer Networking and How the Internet Works" by Douglas E. Comer, "The Elements of Typographic Style" by Robert Bringhurst, "The Non-Designer's Guide to Print Production" by Robin Williams and Sandee Cohen.

DDCA107-P MS OFFICE LAB

PC Packages LAB:-

1. Advanced functions and formulas (e.g., VLOOKUP, INDEX-MATCH, IFERROR, nested functions).
2. PivotTables and Pivot Charts for dynamic data analysis.
3. Data validation and conditional formatting for improved data quality and visualization.
4. Using Excel's statistical functions for data analysis (e.g., AVERAGEIF, COUNTIFS, SUMIFS).
5. Incorporating external data sources (e.g., SQL databases, web queries) into Excel for analysis.
6. Creating interactive dashboards with slicers, timelines, and dynamic charts.
7. Visual Basic for Applications (VBA) macros for automating repetitive tasks and customizing Excel functionality.
8. Advanced charting techniques (e.g., waterfall charts, Pareto charts, heatmaps) for insightful visualization.
9. Collaboration and sharing features in Excel (e.g., co-authoring, version history).
10. Data analysis add-ins and tools available for Excel (e.g., Solver, Analysis ToolPak).
11. Practical Activities:

Advanced Functions: Perform complex data manipulations using VLOOKUP, INDEX-MATCH, and nested functions.

1. PivotTables and Pivot Charts: Analyze large datasets and create dynamic visualizations using PivotTables and Pivot Charts.
2. Data Validation and Conditional Formatting: Implement data validation rules and conditional formatting to enhance data integrity and visualization.
3. Statistical Analysis: Apply Excel's statistical functions to analyze data trends and patterns.
4. External Data Integration: Import data from external sources and perform analysis within Excel.
5. Interactive Dashboards: Design interactive dashboards with slicers, timelines, and dynamic charts to explore data visually.
6. VBA Macros: Record and write VBA macros to automate repetitive tasks and customize Excel functionality.
7. Advanced Charting: Create advanced charts like waterfall charts, Pareto charts, and heatmaps for insightful data visualization.
8. Collaboration and Sharing: Explore collaboration features and share workbooks securely with peers.
9. Add-ins and Tools: Install and utilize Excel add-ins for specialized data analysis tasks.

DDCA-108-P
(WEB DESIGNING & DTP) LAB

1. **Navigation Systems:** Create a **Multi-level Dropdown Menu** using only HTML and CSS (no JavaScript).
2. **Responsive Grid:** Design a **Photo Gallery** using CSS Grid that changes from 4 columns (Desktop) to 2 columns (Tablet) to 1 column (Mobile).
3. **Form Validation:** Build a **User Registration Form** including fields for Email, Password (with strength patterns), and Phone Number using HTML5 attributes.
4. **CSS Animations:** Create a "Hover Effect" card where an image zooms slightly and text overlays appear smoothly when the mouse enters.
5. **Single Page Layout:** Develop a **Portfolio Landing Page** featuring a sticky header, an 'About Me' section, and a footer with social media icons.
6. **Identity Branding:** Design a **Double-sided Business Card** (3.5" x 2") with a custom logo, ensuring CMYK color mode and 300 DPI resolution.
7. **Marketing Material:** Create a **Tri-fold Brochure** for a dummy company, properly setting up "Gutter" spaces and fold marks.
8. **Advanced Masking:** In Photoshop, perform a **Complex Background Removal** (e.g., hair or transparent objects) and place the subject into a new environment.
9. **Typography Poster:** Design a **Typographic Portrait** or Poster where text follows a specific path or shape (using the Pen Tool).
10. **Page Layout:** Create a **2-Page Magazine Spread** including "Drop Caps," "Text Wrap" around an image, and automatic page numbering.