DETAILED SYLLABUS

POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS
(PGDCA)
Effective from JAN-2026

Makhanlal Chaturvedi National University of Journalism and Communication, Bhopal

Makhanpuram, Opposite MP State Shooting Academy, Bishankhedi, Bhopal, Madhya Pradesh-462044 , Web :**www.mcu.ac.in**

About The University

Makhanlal Chaturvedi National University of Journalism and Communication (MCNUJC) was established in 1990. Carrying forward the legacy of excellence, it is a leader and pioneer in Mass Communication, Media, Journalism, Computer Applications, Digital media, and Management Education.

Established by the Madhya Pradesh Government, MCNUJC is named after Pt. Makhanlal Chaturvedi, the great editor, poet, litterateur and freedom fighter. It is the first academic Centre of excellence in the entire Asian sub-continent where professionals are developed in Communication, Media, and IT disciplines through traditional and modern methods of communication relevant to the current media needs. The University is also recognised under section 12(B) of UGC.

Sticking to the newest trends of Media and Information Technology, the University conducts postgraduate, undergraduate as well as skill-oriented diploma courses in Journalism, Broadcast Journalism, Advertising and Public relations, Electronic Media, New Media, Computer Applications Media management and Communication Research.

University has been a pioneer in launching many new job-oriented courses of significance, which have received enormous appreciation among employers. The University has a focused approach towards professional education, training and innovative methods of teaching and learning. Students get opportunity to study subjects of their choice under the Choice Based Credit System (CBCS) as per the industry needs. The University is equally appreciated for its research contribution through its research scholars leading to the award of PhD in Media and Computer Applications. Most of the faculty members of the university hold a PhD along with strong research contribution.

MCNUJC is a unique amalgamation of Media and IT professionals and academicians. Today, the university is also providing education to the remote rural areas with a wide network of over more than 1600 associated study institutes, where annually over one lakh students are studying in regular programs. This is a grand indicator of the university's success, credibility, popularity and recognition.

Our faculty members are renowned for their dynamic approach, research and dedication. They are approachable and enthusiastic teachers who make their disciplines accessible and enjoyable. The university aims to transform dreams and ambitions of students into global opportunities for success. Alumni are placed in renowned print media institutions, channels, advertising agencies, public relations firms, graphic designing and multimedia world, information technology and computer industries and many of them occupy senior positions.

What makes MCNUJC the first choice for media, communication and IT education in the entire country is its comprehensive academics with exceptional industry exposure and quality education on affordable fee structure with the best professional environment.

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POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS (PGDCA)

Course Duration: 1Year, 2 Semesters
Eligibility: Graduate in any discipline from a recognized university.

Course Objectives:

To introduce the fundamental concepts of computer systems and Artificial Intelligence (AI) concepts
To develop practical skills in using word processing, spreadsheets, and presentation software.
To impart knowledge of desktop publishing (DTP) concepts and tools.
To introduce the fundamentals of programming using Python.
To introduce the concepts of databases and relational models.
To train students in using SQL for database creation and management.
To introduce current trends and emerging technologies in the IT industry.
To impart knowledge of internet concepts, web technologies, and design principles.
To develop skills in creating and managing interactive websites.
To provide an overview of Linux operating and basic cybersecurity principles and practices.
To introduce multimedia concepts and tools for digital content creation.
To train students in image editing, video editing, and audio production.
To introduce concepts of business intelligence and data visualization.
To develop proficiency in English and Hindi typing using standard keyboard layouts.
To introduce basic accounting principles and computerized accounting systems.

Course Outcomes:
CO1: Explain the structure and functions of computer systems and basics of AI, machine learning, and intelligent systems.
CO2: Apply office automation tools in real-world business and academic scenarios.
CO3: Understand DTP concepts and tools for digital publishing.
CO4: Create and manipulate images using Adobe Photoshop.
CO5: Write and execute Python programs for solving simple problems.
CO6: Understand the concepts of database systems and SQL and MS-Access
CO7: Type English and Hindi text with improved accuracy and speed.
CO8: Describe major trends in IT such as AI, IoT, Cloud, and Big Data.
CO9: Understand the structure and functioning of the internet.
CO10: Design and develop web pages using HTML and CSS and host and maintain websites on the internet.
CO11: Apply multimedia and layout design concepts to websites.
CO12: Understand accounting principles and business transactions.
CO13: Understand Linux architecture, commands, file systems and apply security measures,
CO14: Apply visualization techniques for business insights.

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SCHEME

POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS (PGDCA)

SEMESTER –I

Subject Code	Subject Name	Credits/Hours			Load	Theory Paper	Practical Exams	Internal Evaluation	Total Marks
		L	T	P					
1PGDCA1	Computer Fundamentals and AI Concepts	4/4	1/1	0	5/5	70		30	100
1PGDCA2	PC Packages with AI Essentials	4/4	0	1/2	5/6	70	20	10	100
1PGDCA3(A) OR 1PGDCA3(B)	**Elective-I** Digital Publishing: PageMaker, Photoshop & InDesign **OR** Programming with Python	4/4	0	1/2	5/6	70	20	10	100
1PGDCA4(A) OR 1PGDCA4(B)	**Elective-II** MySQL Database Management **OR** MS-Access Database Management	4/4	0	1/2	5/6	70	20	10	100
Optional-1	**Hindi Typing**	0	1/1	1/2	2		40	10	50
								Total Marks =450	

(L – Lecture, T-Tutorial P-Practical)

SEMESTER –II

Subject Code	Subject Name	Credits/Hours			Load	Theory Paper	Practical Exams	Internal Evaluation	Total Marks
		L	T	P					
2PGDCA1	Emerging Digital Technologies	4/4	1/1	0	5/5	70		30	100
2PGDCA2	Web Development Technologies	4/4	0	1/2	5/6	70	20	10	100
2PGDCA3(A) OR 2PGDCA3(B)	**Elective-III** Financial Accounting with Tally **OR** Linux and Cyber Security Fundamentals	4/4	0	1/2	5/6	70	20	10	100
2PGDCA4(A) OR 2PGDCA4(B)	**Elective-IV** Multimedia Design and Production **OR** Data Visualization with Power BI	4/4	0	1/2	5/6	70	20	10	100
Optional-II	**English Typing**	0	1/1	1/2	2		40	10	50
								Total Marks =450	

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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.

3. For passing in Typing Test (English and Hindi) minimum 50% marks is required.

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SEMESTER-I
1PGDCA1-Computer Fundamentals and AI Concepts

Detail Syllabus:

UNIT–I: Computer System Concepts, Application area, 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, Blue Ray Disc, Flash drives SD/MMC Memory cards, Solid-State Drive (SSD).

UNIT–II: Input Devices: Keyboard, Mouse, Trackball, 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, Digital, Analog, Resolution, Refresh Rate, Interlaced/Non-Interlaced, Dot Pitch, Video Standard- VGA, SVGA, XGA etc. 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 & Features of DOS, Windows, Linux, Mac, Android. Programming Languages- Machine, Assembly, High Level, 4GL, Their Merits and Demerits, Uses of Assemblers, Compilers and Interpreter. Introduction to Word Processing, Spreadsheet, Presentation Graphics, Data Base Management, Desktop Publishing, communication, Educational, Graphics & Multimedia, Business Accounting, MIS, Gaming and ERP Software etc. Computer coding system-ASCII, ISCII and Unicode, Number system of computers- Binary, Octal, Decimal, Hexadecimal their conversion.

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- client/server and peer-to-peer networks, Types of connections- Dialup, Leased Lines, ISDN, DSL, RF, Broad band uses, advantages & disadvantages. Types of Network- LAN, WAN, MAN, Internet, VPN etc., Topologies of LAN- Ring, Bus, Star, Mesh and Tree topologies- structure, uses, advantages & disadvantages. Components of LAN-Media, NIC, NOS, Network devices - Bridges, HUB, Routers, Repeater, Gateways uses, advantages & disadvantages.

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 Limitations of AI. Exploring AI-powered devices (e.g., smart assistants, image recognition tools). Introduction to Machine Learning and its Relationship with AI. Introduction to AI in the Internet World: Search Optimization, Chatbots, Recommendation Systems, Virtual Assistants, Modern AI Applications: Chatbots, Self-Driving Cars, Voice Assistants. Introduction to Microsoft Copilot.

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.

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- https://cbseacademic.nic.in/web_material/Curriculum25/publication/srsec/843_AI_Student_HandbookXI.pdf

SEMESTER-I
1PGDCA2 – PC Packages with AI Essentials

Detail Syllabus:

UNIT–I: Operating System (Windows): Overview of Windows Operating System, Basic Operations-How to Start a computer, login, logoff, hibernate, 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, Games, Math Input Panel, Language Settings-How to set other languages on computer Using Control Panel to add, remove or configuring new or existing devices, software programs and fonts, Enhance the performance of computer- using Disk Clean-up, using Disk Defragmenter.

Using Internet in Windows: Basic Operations using Internet Browser-Working with browsers, Know about WWW, URL, Search Engines, Google Maps, Online Ticket Booking, Apply for PAN Card/Passport /Aadhar Card online, Pay electricity bill and Service tax online, Downloading eBooks. 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, Elements of office suit & area of use. Word-processing, Spreadsheet, Presentation graphics, Database, Introduction and comparison of various office suites like Apache OpenOffice, Libre Office, WPS office, Google Docs & Microsoft office.

MS Word Basics: Introduction to MS Office(2013), 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 Your 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 a simple table, Creating a table using the Table Menu, Entering and editing text in a table, selecting in table, adding rows, changing row heights, Deleting rows, Inserting columns, Deleting columns, changing column width, conversion to and from text. Introduction to Google Docs, Smart Compose, AI Summarizer.

UNIT–III: Graphics in MS-word: 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. Templates: Template types, using templates, exploring templates, modifying templates.

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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 Basics & features, concepts of Workbook & Worksheets, Getting started, 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 cell data, inserting rows, inserting columns, Inserting cells, 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, Working with Data & Ranges, Column Freezing, Labels, Hiding, Splitting, merging etc.

Charts in Excel: Chart parts and terminology, chart wizard, different types of charts, printing charts, deleting 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: 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, shapes, screenshots, Smart Art and charts in presentation, Sounds and Movies to a Slide; Working with PowerPoint Objects, Designing & Presentation of a Slide Show, change Slide backgrounds, Change Slide Size, Using Animation and Transitions in presentation, Advanced Slide options-Manual & Automatic, Printing Presentations, Notes, Handouts with print options, Slide Master, Handout Master and Notes Master.

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

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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

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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 programmers that helps 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 if often negative.

1. Save your work as "Television" on Desktop.
2. Set the heading : Font Times New Roman Size 18, align center & 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

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- 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 बढाती है, रक्त को चलती है और अधिक पसीना लाती है। हँसी एक शक्तिशाली दवा है। एक डॉक्टर कहता है कि वह जीवन कि मीठी मदिरा है। डॉक्टर ह्युड कहता है कि आनंद से बड़कर बहुमूल्य वस्तु मनुष्य के पास और कोई नहीं। कारलाइल 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, तुम्हे अच्छा लगेगा। अपने मित्र को हँसाओ, अव अधिक प्रसन्न होगा। शत्रु को हँसाओ, तुम से कम घर्णा करेगा। एक अनजान को हँसाओ, तुम पर भरोसा करेगा। उदास को हँसाओ, उसका दुःख घटेगा। एक निराश को हँसाओ, उसकी आशा बढेगी। 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। तथापि उन कामों में, कष्टों में और चिंताओं में एक सुँदर आतंरिक 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

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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
1PGDCA3 (A) – Digital Publishing: PageMaker, Photoshop & InDesign

Detail Syllabus:

UNIT-I: Introduction to Desk Top Publishing (DTP), Photocomposing Machines & DTP, Definition, Need and Area of Application. Use of DTP in Offset Printing & Web Designing, Use of Desk Top Publishing in Publications, Importance of D.T.P in Publication, Advantage of D.T.P in Publication, Page Layout & Designing in a single page production. Laser printers - Use, Types, Advantage of laser printer in publication

Difference between a word processor and Publication Software, Use and importance of DTP in Publication & 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. DTP & Page Layout Designing

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. Use of Page Maker in News paper and Magazines, 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., The 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.

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
- 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-I
1PGDCA3 (B) – Programming with Python
Elective-I

Detail Syllabus

UNIT-I: Python Basics: Introduction to Python, Python IDLE, features, basic data types, variables, expressions, statements, operators, flow of execution, Input and Output statements. Conditional statements: if, if-else, else-if, Iteration: while, for, break, continue, Pass, Creating and executing: py scripts.

UNIT-II: Lists: append, extend, insert, index, remove, pop, count, sort, reverse, slicing, list comprehension, Copying a list deep copy, shallow copy. Tuples: index, count. Usage, use of tuples as a swap function. Dictionaries: keys, values, tuples, nested dictionaries. Strings: single line and multi-line strings, formatter, isdigit, isalpha, isalnum, islower, isupper, isspace, title, lower, upper, strip, split. splitlines join etc. Sets: union, intersection, subset, superset, difference, symmetric difference, copy, add, remove, discard etc.

UNIT-III: Functions & File Handling: Built Functions- id, len, chr etc., defining and calling function, arguments, global versus local variables, defining and using lambda functions, map(), filter(), reduce() functions. Working with files: read, write and append modes: r, w, a, r+, w+, a+, reading-read(), readline(), readlines(), writingwrite(), writelines(), seek(), tell().

UNIT-IV: Introduction to Classes, modules, OOP concepts in Python. Working with Databases using MySQL: Introduction to MySQL, connecting to database. creating, accessing and modifying tables, using insert, select, update, delete, drop commands in Python. Exceptional Handling: The try-except-else-finally block, the raise statement, the hierarchy of exceptions, adding exceptions.

UNIT-V: Introduction to Python Libraries-Pandas, Matplotlib. Importing and Exporting Data in Python. Data Visualization: Drawing and saving different types of plots using Matplotlib-line plot, bar graph, histogram etc.

Reference Books:

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1. T. Budd, Exploring Python, TMH, 1st Ed, 2011
2. How to think like a computer scientist: learning with Python / Allen Downey, Jeffrey Elkner, Chris Meyers. 1st Edition – Freely available online.
3. http://docs.python.org/3/tutorial/index.html
4. http://interactivepython.org/courselib/static/pythonds

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Practical Questions:

- Using for loop, print a table of Celsius/Fahrenheit equivalences. Let c be the Celsius temperatures ranging from 0 to 100, for each value of c, print the corresponding Fahrenheit temperature.
- Using while loop, produce a table of sins, cosines and tangents. Make a variable x in range from 0 to 10 in steps of 0.2. For each value of x, print the value of sin(x), cos(x) and tan(x).
- Write a program that reads an integer value and prints "leap year" or "not a leap year".
- Write a program that takes a positive integer n and then produces n lines of output shown as follows. For example enter a size: 5

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*
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***
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*****
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- Write a function that takes an integer 'n' as input and calculates the value of 1 + 1/1! + 1/2! + 1/3! + ... + 1/n
- Write a function that takes an integer input and calculates the factorial of that number.
- Write a function that takes a string input and checks if it's a palindrome or not.
- Write a list function to convert a string into a list, as in list ('abc') gives [a, b, c].
- Write a program to generate Fibonacci series.
- Write a program to check whether the input number is even or odd.
- Write a program to compare three numbers and print the largest one.
- Write a program to print factors of a given number.
- Write a method to calculate GCD of two numbers.
- Write and execute a simple Python program using IDLE that prints your name, course, and favorite subject.
- Create variables of different types (int, float, string, bool) and display their values and data types using the type() function.
- Write a Python program to perform arithmetic operations (+, -, *, /, %, //, **) and comparison operations (==, !=, >, <, >=, <=).
- Write a Python program that takes a user's name and age as input and displays a greeting message.
- Write a Python program to check whether a number entered by the user is positive, negative, or zero.
- Accept marks from the user and display grade according to the following conditions:
  - Marks ≥ 90 → Grade A
  - Marks ≥ 75 → Grade B
  - Marks ≥ 50 → Grade C
  - Else → Fail
- Write a program to display all even numbers between 1 and 50 using a for loop.
- Write a program that calculates the sum of digits of a number using a while loop.
- Demonstrate the use of break, continue, and pass statements in loops.
- Create a .py file named basics.py containing a Python program that performs the following:
  - Takes user input for two numbers.
  - Performs addition, subtraction, multiplication, and division.
  - Displays results in a formatted way.

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SEMESTER-I
1PGDCA4 (A)- MySQL Database Management
ELECTIVE-II

Detail Syllabus

UNIT–I: Introduction to database concept , Need of database, Flat Database, Database Management System, Characteristics of DBMS ,Relational Database, Entity and Referential Integrity, Database Concept of primary key, Database Application Example, Banking, Railways, School, Retail Store. Database Elements - Tables, Query, Form, Report, Introduction to Client Server paradigm.

UNIT-II: My SQL Database, Its Features, Installation on Windows, Making it works on Command Line, Using the Built in Database, Running and Shutting down MySql Server, Setting up MySql user account. CREATE and DROP database, Important Administrative Mysql database commands– SHOW DATABASE, USE DATABASE, SHOW TABLES, SHOW COLUMN, and SHOW INDEX.

UNIT–III: Database Query Commands DDL, DML, DCL, Creating Tables Using SQL Commands, Using various Data Types, Applying constraints on Tables, Updating, Deleting MySQL Tables, Inserting Data, Updating and Deleting Data - Retrieving Data From a MySQL Database- Sorting Data Retrieved from a MySQL Database- Using WHERE to Filter data. SQL Functions and Operators Control flow function, String Function, Numerical Function.

UNIT–IV: Data- Advanced MySQL Data Filtering- AND, OR, NOT and IN- MySQL Wildcard Filtering using LIKE- MySQL Regular Expression Searches - Joining Tables in MySQL, Applying Grouping of data by Group By, MySQL Data Aggregation Functions- MySQL Users and Security- Administering and Monitoring MySQL using the MySQL Commands.

Unit–V: Example Applications for My Sql database- Workbench and PhpMyAdmin, Graphical user Interface of PhPMyAdmin, PhPMyAdmin Features, Installation, Use of different section of PhpMyAdmin, Managing database with PhPMyAdmin, Browse, Structure, Search, Insert, Empty, Drop, Create new tables and add data, Execute MySql query with sql tab.

Reference Books:

- A Guide to MySql Philip J Pratt
- Learning MySql Seyed MM TahaghaghiO'Reillay Publications
- https://dev.mysql.com/doc/refman/5.6/en/
- https://www.analysisandsolutions.com/code/mysql-tutorial.htm

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Practical Questions:

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

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

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SEMESTER-I
1PGDCA4 (B)- MS-Access Database Management
ELECTIVE-II

Detail Syllabus:

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: 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.

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Practical Questions:

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

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

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

- 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

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SEMESTER-II
2PGDCA1 – Emerging Digital Technologies

Detail Syllabus:

UNIT-I: Overview of IT and its Evolution: Role of IT in the Digital Economy, Impact of IT on Society, Education, E-governance, e-democracy, Government efforts to encourage citizen participation, PPP model, E-governance websites & services, MPONLINE services, UIDI & Aadhar, E-governance mobile apps like UMANG, Digital Locker, Digital Library., E-Commerce- introductions, concepts, 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. Green Computing and Sustainable IT Practices, Applications of AI, Cloud, or IoT.

UNIT-II: Cloud Computing and Virtualization: Introduction to Cloud Computing and its Architecture, Types of Cloud: Public, Private, Hybrid, Community, Service Models: IaaS, PaaS, SaaS, Virtualization Concepts: Hypervisors, Virtual Machines, Containers, Cloud Security, Privacy, and Challenges, Major Cloud Providers: AWS, Microsoft Azure, Google Cloud.

UNIT-III: Artificial Intelligence, Machine Learning & Data Analytics: Introduction to AI and ML Concepts, AI Applications in Automation, Healthcare, Education, and Business, Overview of Machine Learning Models: Supervised, Unsupervised, Reinforcement Learning, Basics of Data Science and Data Analytics, Predictive Analytics and Business Intelligence Tools, Introduction to Generative AI and Chatbots.

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UNIT-IV: Internet of Things (IoT), Blockchain & Cybersecurity: Internet of Things (IoT): Concepts, Architecture, and Applications, Smart Devices, Sensors, and Communication Technologies, Blockchain Technology: Structure, Function, and Use Cases, Introduction to Cryptocurrencies and Smart Contracts Fundamentals of Cybersecurity: Threats, Attacks, and Prevention , Data Privacy, Cyber Laws, and Digital Ethics

UNIT-V: Emerging Digital Technologies and Future Trends : 5G and Edge Computing, Augmented Reality (AR), Virtual Reality (VR), and Mixed Reality, Robotic Process Automation (RPA) and Chatbots, Quantum Computing: Concept and Applications, Green and Ethical IT Practices, Future Career Paths and Certifications in Emerging IT Fields, Introduction to Computer Vision, Introduction to cryptocurrency.

Books and References:

- Fundamentals Of Information Technology By Alex Leon &Mleon, Vikas Publications.
- E-Commerce An Indian Perspective (Second Edition) By Pt Joseph, S.J. Prentice-Hall
- Information Technology & Computer Applications by V K. Kapoor, Sultan Chand & Sons, New Delhi.
- https://msftstories.thesourcemediaassets.com/sites/93/2020/04/Student-Guide-Module-1-Fundamentals-of-AI.pdf
- https://cbseacademic.nic.in/web_material/Curriculum25/publication/srsec/843_AI_Student_HandbookXI.pdf
- file:///C:/Users/DELL/Downloads/21-3SSREB-12023-2024AIForEveryoneFundamentals-CompleteE-Book.pdf

Practical Questions:

- Create a free cloud account (Google Cloud or AWS Educate)
- Host a small file or application on the cloud
- Demonstrate virtualization using VirtualBox or similar software
- Explore ChatGPT or Google Gemini for AI-based problem solving
- Perform basic data visualization using Excel or Google Sheets
- Demonstrate AI image or text generation tools
- Demonstrate IoT concepts using online IoT simulators (TinkerCAD, Wokwi)
- Explore a simple blockchain demo (Ethereum testnet / online simulators)
- Research a recent cyber-attack case study and discuss security solutions
- Explore AR/VR demo applications

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SEMESTER-II
2PGDCA2– Web Development Technologies

Detail syllabus:

UNIT–I: Introduction to Internet - Internet Evolution & Concept, Internet Vs Intranet, Growth of Internet, Internet Service Provider (ISP) & its Function, Connectivity- Dialup, Leased line, VSAT , URLs, Portals, Internet Services, Applications. E-MAIL- Basics of Sending & Receiving, Free Email services, Internet chatting - Voice chat, Text chat, World Wide Web (www)- History, Working, Web Browsers & its functions, Concept of Search Engines, Searching the Web, HTTP, URLs, Web Servers, Web Protocols, Networks layers & TCP/IP Protocols, The Advantages and disadvantages of Internet and World Wide Web.

UNIT–II: HTML- Concepts of Hypertext, Versions of HTML, Elements of HTML, Syntax, Tags & Attributes, Head & Body Sections, Building, HTML Documents. Inserting Texts, Images, Hyperlinks, Backgrounds And Color Controls, Different HTML Tags, Table Layout and Presentation, Creating Lists, Use of Font Size & Attributes, List Types and Its Tags, Use of Frames and Forms in Web Pages, Creating Frameset, Opening pages into frames, Design Forms Control.

UNIT–III: Cascading Style Sheet (CSS) – Introduction, creating style , using inline and external CSS, Creating Divs with ID style, creating Tag & Class style using font family, size and colors, creating borders, Navigation links, creating effects with CSS, JavaScript Overview, syntax & conventions, Variables, Expressions, Branching & Looping statements, Functions, Arrays Objects, Events &

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Document Object Model - onClick, onMouseOver, on Submit, on Focus, on Change, onBlur, onLoad, onUnload, Alerts, Prompts & Confirms.

UNIT–IV: Designing Websites with Expression Web– Introduction to WYSIWG HTML editor, advantages of using HTML editors, Creating a new site, Creating a new Page, Inserting and formatting text, Creating & Inserting Images, Adjusting Transparency settings, Adding Images with alternative Text, Aligning images, creating Email Link, Linking to other websites, Testing and targeting Links, Organizing files & folders, Designing Accessible Tables, styling a table, Editing table layouts, Adding style to a table using CSS.

UNIT–V: Word Press- What is Word Press, Installation, Login, overview of admin panel, user profile, Word Press Themes, Themes depository, Create & add a new logo, Set up a static home page, Create Posts, Delete pages, Create Menu, Add a post, Delete a post, Add Widgets, Upload images, Add Images To a post, Insert and Format Text, Add a Hyperlink to an image, Add a Hyperlink to some text, Protocols- meaning, different web protocols- FTP, DNS, TCP, UDP, HTTP, IP Telnet Concept, FTP Commands - viewing Files and directories, Transfer and rename files, FTP with Filezilla & CuteFTP, Web Hosting – Concept, Introduction to Domain Name & DNS, procedure to register a Domain Name, Procedure for web hosting, Space on Host Server for Website.

Reference Books:

- 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. Esentice-Hall Of India
- Internet For Everyone - Alexis Leon And Mathews Leon, Vikas Publishing House Pvt. Ltd., New Delhi
- WordPress Made Super Simple - How Anyone Can Build A Professional Looking Website, by Jack Davies and Sarah Wiley
- Internet For Dummies - Pustak Mahal, New Delhi
- A Beginners Guide To Html Available At:Http://Www.Ncsa.Uiuc.Edu /General/Internet /Www.htmlprimerall. Html
- Introduction To Javascript Available At - Www. Mcu. Ac. In/Javascriptguide.Pdf
- How To Create A Website Using Wordpress: The Beginner's Blueprint for Building a Professional Website in 3 Easy Steps Kindle eBook , by Brian Patrick
- Wordpress for Beginners 2017: A Visual Step-by-Step Guide to Mastering Wordpress Kindle eBook by Dr. Andy Williams

Practical Questions:

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.

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Q11.   Creating a mail link on a web page
Q12.   Explain how you can make your site live in Expression Web and word press?
Q13.   How you can perform validation in Expression Web and word press?
Q14.   How you can create a mailto form in Expression Web and word press?
Q15.   How you can add an image to your web page in Expression Web and word press?
Q16.   Design a website for your university using Expression Web and word press?
Q17.   Design a website for university e-library using Expression Web and word press?
Q18.   Design a website for MP Tourism and booking using Expression Web and word press?
Q19.   Design a website for online exam using Expression Web and word press?
Q20.   Design a website for E-ticketing system using Expression Web and word press?

SEMESTER-II
2PGDCA3 (A)–Financial Accounting with Tally
ELECTIVE-III

Detail Syllabus:

UNIT–I: Accounting Fundamentals

Introduction to Accounting - Meaning, Objectives & Importance, Types of Accounting (Financial, Cost, Management), Users of Accounting Information, Basic Accounting Terms & Concepts - Assets, Liabilities, Capital, Income, Expenditure, Profit, Loss, Debtors, Creditors, Double Entry System, Golden Rules, Concepts: Accrual, Matching, Going Concern, Consistency, Prudence, Accounting Process - Journal Entries, Ledger Posting, Trial Balance Preparation, Subsidiary Books & Cash Book - Purchase, Sales, Returns Books, Single, Double & Triple Column Cash Books, Final Accounts - Trading Account, Profit & Loss Account, Balance Sheet (with Adjustments), Financial Statement Analysis - Fund Flow Statement, Meaning, Sources & Applications of Funds, Schedule of Changes in Working Capital, Cash Flow Statement, Cash Flow from Operating, Investing & Financing Activities, Format as per AS-3, Ratio Analysis - Liquidity Ratios (Current, Quick), Profitability Ratios (Gross Profit, Net Profit, Return on Capital), Solvency Ratios (Debt-Equity, Interest Coverage), Activity Ratios (Stock Turnover, Debtors Turnover), Interpretation & Decision-making, Practical Exercises & Mini Project - Manual preparation of Journal, Ledger, Trial Balance, Final Accounts, Preparation of Fund Flow, Cash Flow & Ratios for a sample business case.

UNIT-II: Introduction to Tally Prime & Basic Accounting Entries

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Introduction to Tally Prime - Features & Advantages, Installing & Navigating Tally Prime, Company Creation, Backup & Restore, Basic Tally Operations - Gateway of Tally, Company Features & Configurations, Security & Password Management, Accounting Masters - Creating & Altering Groups, Ledgers, Chart of Accounts, Voucher Entries - Contra, Payment, Receipt, Journal, Purchase, Sales, Debit Note, Credit Note, Day Book, Trial Balance & Basic Reports - Viewing & Printing Vouchers, Understanding Day Book & Trial Balance, Banking Features - Bank Reconciliation, Cheque Printing & Deposit Slips, Payment Advices, PDC Voucher, Non Accounting Vouchers – Memorandum Voucher, Reversing Journal, Optional, Cost Centers & Cost Categories, Budgeting & Scenario Management

UNIT–III: Inventory Management in Tally Prime

Introduction to Inventory Management, Inventory Masters - Stock Groups, Stock Categories, Stock Items, Units of Measurement, Compound Units, Godowns, Inventory Vouchers - Purchase Order, Sales Order, Delivery Note, Receipt Note, Rejection Out, Rejection In, Stock Journal, Physical Stock, Invoicing & Billing - Item Invoicing vs Accounting Invoicing, Multiple Price Levels & Lists, Discounts, Defining standard cost & selling price, Defining MRP, Actual & Billed Quantity, Inventory Reports - Stock Summary, Movement Analysis, Shortage, Ageing, Batch-wise Reports, Purchase Register, Sales register.

UNIT-IV: GST in Tally Prime

Overview of GST - Concept, Structure (CGST, SGST, IGST, UTGST), GST Registration, Returns, Tax Rates, GST Configuration in Tally - Enabling GST, Creating Tax Ledgers, Assigning GST Details to Masters, Recording GST Transactions - Intra-state & Inter-state Sales & Purchases, Taxable & Exempt Transactions, Reverse Charge Mechanism, GST Reports & Returns - GSTR-1, GSTR-2, GSTR-3B, Input Credit Summary, Generating & Exporting Reports for Filing.

UNIT-V: Advanced Accounting Features – TDS, MIS & Reports

TDS (Tax Deducted at Source) - Introduction to TDS & Applicability, TDS Ledgers & Configuration in Tally, Recording TDS on Expenses & Payments, TDS Reports, MIS Reports & Analysis - Balance Sheet, P&L, Ratio Analysis, Cash Flow & Fund Flow Statements, Management Reports & Export Options, Project Work & Assessment - Full Accounting Cycle in Tally with GST & TDS, Real-world business scenario simulation.

Reference Books:

- Nadhani, K.K, Accounting with Tally, BPB Publications, New Delhi
- Kogent Learning Solution, Tally ERP 9 in simple steps (Hindi), Dreamtech Press, New Delhi
- Goyal, Hemant Kumar, कम्प्यूटर द्वारा एकाउटींग, Radha Pocket Books
- N. Satyapal, Using Tally, Khanna Books Publishers, New Delhi
- Nadhani, Ashok K, Nadhani, Kisor K, Implementing Tally 9, BPB Publications, New Delhi

SEMESTER-II

2PGDCA3 (B)–Linux and Cyber Security Fundamentals ELECTIVE-III

Detail Syllabus:

UNIT I: LINUX BASICS AND ESSENTIAL TOOLS:
Introduction to Linux: Linux Distributions (Ubuntu, CentOS, Kali Linux), Open Source Software, Windows vs Linux Comparison, Installing Linux on Virtual Machine (VirtualBox), Logging in to Linux (GUI and CLI) , Essential Linux Command ls, cp, mv, rm, mkdir, cd, pwd, man, help and info, Working with the Bash Shell, Using I/O Redirection and Piping (>, >>, |, <), Command History, Variables and Environment Variables, Essential File Management Tools, Understanding the Linux File System Hierarchy (/, /home, /etc, /var, /tmp), Using Wildcards, Linux File System Structure (/home, /etc, /bin, /usr, /root), File and Directory Commands: pwd, cd, ls, mkdir, rmdir, cp, mv, rm, Viewing and Editing Files: cat, more, less, head, tail, nano, vi, Archiving Files with tar, Managing File Compression (gzip, bzip2), Understanding vi/vim Text Editor, creating and editing

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text Files, Browsing Text Files , Displaying File Contents with cat and tac, Working with grep for text Search, Regular Expressions, Common Text Processing Utilities (cut, sort, uniq).

UNIT II: USER MANAGEMENT AND SYSTEM ADMINISTRATION

User and Group Management,File Permission Representation (r, w, x), Changing Permissions: chmod, chown, chgrp, Creating Users with useradd , groupadd Managing User and Group Properties, Configuring Defaults for New Users, Managing Password Properties, Understanding User and Group Configuration Files (/etc/passwd, /etc/shadow, /etc/group), Managing Current Sessions (who, w, last), Connecting to a Server, Understanding the root user, Using su and sudo Commands, Simple sudo Configuration, Using SSH to Connect to a Remote Server, Configuring SSH Key-Based Authentication, Understanding Working with Systemd, Managing Systemd Services with systemctl, Starting, Stopping, Enabling, and Disabling Services, Understanding Targets and Runlevels, Managing Networking**,** Understanding Networking Basics (IP Address, MAC Address, Ports), Understanding IPv4 Basics, Applying Network Configuration (GUI, CLI, nmtui), Using Common Network Tools (ping, traceroute, netstat, ifconfig/ip), Using nslookup and dig for DNS Queries, Understanding DNS and DHCP Basics, Understanding Linux Firewalling Basics

UNIT III: CYBERSECURITY FUNDAMENTALS

Introduction to Cybersecurity, Understanding Cybersecurity Concepts, CIA Triad (Confidentiality, Integrity, Availability), Common Cyber Threats (Phishing, Malware, Ransomware, Social Engineering), Understanding Attack Vectors and Threat Actors, Data breach, Essential File Management Tools, Essential File Management Tools, Career Opportunities in Cybersecurity, Password Security, Creating Strong Passwords, Using Password Managers, Understanding Two-Factor Authentication (2FA), Setting up 2FA on Common Platforms, Checking Compromised Credentials with Have I Been Pwned, Understanding Email Security Threats , Analyzing Email Headers, Identifying Phishing Emails, Understanding HTTPS vs HTTP, Using WHOIS Lookup for Domain Information, Safe Browsing Practices.

UNIT IV: SECURITY TOOLS AND PRACTICAL TESTING

Information Gathering Tools, Understanding OSINT (Open Source Intelligence) ,Using WHOIS for Domain Lookup,Using the Harvester for Email Collection, Introduction to Shodan Search Engine, Google Dorking Techniques, DNS Enumeration with nslookup and dig, Network Scanning with Nmap, Understanding Port Scanning Concepts, Basic Nmap Scans (Host Discovery, Port Scan) , Service and Version Detection, Understanding Scan Results, Packet Analysis with Wireshark, Understanding Network Packet Analysis, Using Capture and Display Filters, Analyzing Common Protocols (HTTP, DNS, TCP), Password Cracking Tools, Understanding Hash Functions (MD5, SHA), Introduction to Password Cracking, Using John the Ripper Tool for Password Cracking, Cracking ZIP and RAR Password Protected Files, Dictionary Attacks and Wordlists, Using Online Hash Crackers, Introduction to Hashcat Tool , Wireless Network Security, Understanding Wi-Fi Security Viewing Nearby Wireless Networks, Introduction to Airodump-ng Tool, Understanding WPS Vulnerabilities, Wireless Security Best Practices.

UNIT V: CYBERSECURITY AWARENESS & DIGITAL SAFETY

Securing Personal Email Accounts, Common email-based attacks, Securing Gmail Account , Enabling Two-Factor Authentication (2FA), Account Recovery Setup, Checking security activity, Removing unknown devices, Social Media Security & Privacy, Private vs public accounts, Recognizing fake followers, WhatsApp Security, WhatsApp scams, Online Banking & Payment Security, Safe Online Banking Practices, UPI and Digital Wallet Security, Safe QR code scanning practices, Google Pay, PhonePe, Paytm security settings, Setting UPI transaction limits,

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Credit/Debit Card Safety, Using virtual cards for online shopping, CVV importance, Types of financial Frauds, Mobile Device Security, Android Security Settings, Google Play Protect, Security updates, App permissions review, Face ID / Touch ID setup, Risks of public Wi-Fi, Using VPN on public networks, Common Cyber Frauds in India, Types of Phishing and Vishing, Social Engineering Attacks, Understanding Cybercrime Portal, Cybercrime.gov.in, National Cybercrime Reporting Portal (NCRP), Types of complaints that can be filed, Evidence before filing, Change all passwords after fraud, Alternative Reporting Methods, Helpline: 1930, Local Police Station Cyber Cell, Bank Fraud Reporting.

Reference Books:

1. *Linux Bible* , Christopher Negus, Wiley India Ltd.
2. *Penetration Testing: A Hands-On Introduction to Hacking*, Georgia Weidman, No Starch Press
3. *Cybersecurity Essentials* —Christopher Grow, Charles Brooks,
4. *Linux: The Complete Reference*, Michael Kofler, McGraw Hill
5. *Linux Administration A Beginner's Guide, Sixth Edition, Wale Soyinka, MC Graw Hill*
6. *Linux: Powerful Server Administration by Jonathan Hobson, Oliver Pelz, and Uday R. Sawant, Packt Publishing*

Important Resources, *Helplines and Lab Requirements*

Online Resources:
- Cybercrime.gov.in - Official Cybercrime Reporting Portal
- Have I Been Pwned (haveibeenpwned.com)
- OWASP Foundation (owasp.org)
- Kali Linux Documentation (kali.org/docs)
- CERT-In (cert-in.org.in)

Emergency Contacts:
- 1930 - National Cyber Crime Helpline (24/7)
- 155260 - Cyber Crime Helpline (some states)
- 100 - Police Emergency

Official Portals:
- cybercrime.gov.in - Report cybercrimes
- cert-in.org.in - Computer Emergency Response Team
- cyberswachhtakendra.gov.in - Cyber hygiene portal

LAB REQUIREMENTS
- Software Requirements: VirtualBox or VMware Workstation (Free), Ubuntu Linux 20.04/22.04 LTS, Kali Linux (Latest Version)
- Hardware Requirements: Minimum 4GB RAM (8GB Recommended), 50GB Hard Disk Space, Internet Connection for Updates and Downloads
- Online Accounts Needed: Personal Gmail account (for security labs), Social media accounts (for privacy labs), Access to cybercrime.gov.in portal

Practice Environments: DVWA, Metasploit

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Practical List:

Lab 1: Installing Linux on Virtual Machine
Lab 2: Using Essential Linux Commands (ls, cd, cp, mv, rm, mkdir, pwd)
Lab 3: Working with Bash Shell and I/O Redirection
Lab 4: File Management with find, grep, and wildcards
Lab 5: Creating and Editing Files with vi/vim and nano
Lab 6: Working with tar Archives and File Compression
Lab 7: Creating and Managing Users and Groups
Lab 8: Managing File and Directory Permissions
Lab 9: Configuring SSH and Connecting to Remote Server
Lab 10: Installing and Removing Software Packages
Lab 11: Managing Services with Systemctl
Lab 12: Configuring Network Settings (IP, DNS, Gateway)
Lab 13: Using Network Troubleshooting Tools (ping, traceroute, netstat)
Lab 14: Setting up 2FA on Personal Accounts
Lab 15: Analyzing Email Headers for Security
Lab 16: Using WHOIS and Certificate Checking
Lab 17: Information Gathering with WHOIS and theHarvester
Lab 18: Network Scanning with Nmap
Lab 19: Packet Capture and Analysis with Wireshark
Lab 20: Password Cracking with John the Ripper
Lab 21: Securing Gmail Account (Enable 2FA, Password Change, Security Checkup)
Lab 22: Social Media Security Audit (Facebook, Instagram, WhatsApp)
Lab 23: Password Security Exercise (Test strength, Create passphrases)
Lab 24: Phishing Detection Exercise (Identify phishing emails)
Lab 25: Mobile Security Configuration (Lock screen, Permissions, Updates)
Lab 26: Cybercrime Complaint Registration (Demo on cybercrime.gov.in)
Lab 27: Digital Footprint Analysis (Google yourself, Review privacy)
Lab 28: Safe Online Transaction Practice (Verify websites, Check SSL)

Suggested Projects:

1. Personal Security Audit Report
    ○ Audit own digital presence
    ○ Implement security improvements
    ○ Document before/after
2. Family Cybersecurity Awareness Campaign
    ○ Create presentation
    ○ Train family members
    ○ Secure their accounts
3. Small Business Security Plan
    ○ Assess security needs
    ○ Create implementation plan
    ○ Estimate costs
4. Case Study Analysis
    ○ Research recent cybercrime
    ○ Analyze what went wrong
    ○ Propose prevention measures
5. Security Toolkit Creation

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SEMESTER-II
2PGDCA4 (A)– Multimedia Design and Production
ELECTIVE-IV

Detail Syllabus:

UNIT-I: Introduction to CorelDraw, Usage and Advantages, Introduction to User Interface, Introduction to tool panel and workspaces, Introduction to various size and formats of panels and layouts, File layouts and layout properties, Objects and using color profiles.

UNIT-II: Text tools and text properties, Creating Vector graphics by using editing tools, Importing Images and graphics in Corel draw layout, Creating shapes and editing shapes, Drawing curves and editing curves, Creating special text effects, Creating special object effects, Using color effects.

UNIT-III: Using grid and rulers, Tracing images and graphics, working with borders and page arrangements, Using Masking effects with Text, Using Masking effects with objects

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UNIT–IV: Adobe Premier: Introduction, Area of Use, Setting up new Project, Workspace: Project Video Display, Selected Clip Display, project panel Project Timeline Toolbar,

Toolbar description: Selection Tool, Track Select Forward Tool, Track Select Backward Tool Ripple Edit Tool, Rolling Edit Tool, Rate Stretch Tool, Razor tool, Slip tool, Slide Tool, Pen Tool, Hand Tool, Zoom Tool.Importing files into Premier, Sequence, Titles, Video Motion, Video Opacity, Transition Panel, Effect panel, Color Correction, Adjusting Video Speed, Saving Project, Exporting Video

UNIT–V: Sound Forge: Introduction, Interface, Editing Toolbar, Transport toolbar, Opening new file, playing a file, playing file from specific point, playing a selection, Basic Sound Editing: Copying, Pasting, Cutting, Deleting, Cropping, Mixing, Recording Audio Normalizing, Using Markers, Noise Reduction.

Reference Books:
- LearnCorel Draw 11 by BPB PUBLISHING
- Corel Draw the official Guide by Gray David Bouton, Corel Press
- Corel Draw Course 11, 12, X To X5 BY VISHNU P. SINGH, BPB PUBLISHING
- Instant sound forge (Audio)   Fisher, Jeffrey,
- A guide to film making with software tools: Adobe Premire and Sound Forge NIIT

Practical Questions:

Q. Refer the following points and Design a wedding invitation card. Invitation Card should contain following:
- Size of card – 4.5 x 6.25 or 5 x 7 inches
- Proper phrase for invitation (Hindi or English)
- Name of bride and groom. (Hindi or English)
- Venue with garden name and address or Home Address (Hindi or English)
- Date of Marriage Ceremony.
- Name of Host
- Card Template and colour should match with mood of occasion.

Q. Design a cover page for a book on "Personality Development". Book Cover should include the following:
- Name of Book
- A picture or graphics related to theme.
- Name of author (Dr. ABC Kumar)
- Name of Publisher and logo (Any publisher of your choice).
- Price of the book.
- Cover page of Book - 6 x 9 inches.
- Insert pictures and graphics according to theme.

Q. Refer the following points and design an invitation card for Showroom Opening based on following points:
- Size of card – 4.5 x 6.25 or 5 x 7 inches
- Name of showroom is "Charan paduka (may try in hindi)"
- Charan paduka are sellers of footwear with tagline Go Happy.
- New showroom is opening in – Platinum Plaza, Mata Mandir Road, Bhopal

- Date of opening ceremony is – Sunday, 22th April 2018 Timing 11:00 AM
- Proper phrase for invitation.
- Theme and background image or template of card should match with mood of occasion.
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Q. Design a poster for a student film which is a children film having 3-4 characters.
General Description of poster may include –
- Size of poster – 11 x 17 inches or 8.5 x 11 inches.
- Name of Film – Khulja Shim Shim
- Characters – two boys and a girl
- Direction – Suraj Jain
- Camera – Vinay Kumar
- Music – Sharmila

Khulja shim shim is a children film which about fulfilling a dream of children who want to go to Bhopal by train. Three children live in a village and they do not have enough money to buy a train ticket. Film is about how they fulfil their dream.

SEMESTER-II
2PGDCA4 (B) – Data Visualization with Power BI
ELECTIVE -IV

Detail Syllabus:

UNIT I: Introduction to data visualization, The data visualization process, Importance of data visualization, Model of communication systems, Types of Communication Problems- technical, semantic and effectiveness, Data types, relationships, and visualization formats, Basic principles for data visualization - Principles of Communicating Data- Know your goal, use the right data, select suitable visualizations, design for aesthetics, choose an effective medium and channel, check the results, Data storytelling for social and market communication, Trends in market research and data visualization dashboards.

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UNIT II: Power BI - Introduction, Features, Power BI Products, Power BI Architecture, Download and Installation of Power BI, Using Desktop Workspace, Power BI User Interface, Workspace, Toolbar, Menu, Visuals, Dashboards, Fields Pane, Data Types, File Types.

UNIT III: Data connection with data sources like Text File and Microsoft Excel, Power BI Calculations – Calculated Columns, Measures, Quick Measures using DAX (Data Analysis Expressions), Power BI Expressions – Field, Operator, Constant, Parameter, and Comment, DAX Operators – General operators, Arithmetic operators, Relational operators, and Logical operators, DAX Functions – Number functions, Text functions, Date functions, Logical functions, and Aggregate functions, Data transformation using Power Query Editor – Merging, Appending, Splitting, Filtering, and Cleaning data, Power BI Filters – Basic Filters and types: Visual-level, Page-level, Report-level filters.

UNIT IV: Visual displays of information – simple text, tables, graphs, points, lines, bars, area Power BI charts & visuals – bar chart, line chart, pie chart, column chart, bubble chart, area chart, donut chart, scatterplot, tree map, waterfall chart, gauge, matrix, cards, slicers ,Creating interactive dashboards – designing reports using visuals, configuring drill through and tooltips

UNIT V: Clutter, gestalt principles of visual perception – proximity, similarity, enclosure, closure, continuity, and connection types of visual clutter – lack of visual order, alignment, white space and non-strategic use of contrast, pre-attentive attributes design principles for effective data communication – use of layout, color, contrast, and minimalism in power bi best practices for designing user-centric, accessible power bi reports

Books and References

- Microsoft Power BI for Dummies ,by Jack A. Hyman , Wiley
- Visualize It!: A Comprehensive Guide to Data Visualization by Netquest Available online at https://www.netquest.com/en/download-ebook-data-visualization
- Data Visualization Techniques Angie Ficek Available online at https://www.cehd.umn.edu/OLPD/MESI/spring/2015/Ficek-DataVis.pdf
- Ben Jones, Communicating Data with Tableau O'Reilly Media, Inc. Publication, ISBN: 978-1-449-37202-6
- Interactive Data Visualization - Foundations, Techniques, and Applications by Matthew Ward, Georges Grinstein, Daniel Keim, CRC Press, Taylor & Francis Group