

PGDCA Syllabus

Contents

1PGDCA1- Computer Fundamentals and AI Concepts	2
1PGDCA2 – PC Packages with AI Essentials	4
1PGDCA3(B)- Programming with Python	6
1PGDCA3(B) - Digital Publishing: PageMaker, Photoshop & InDesign.....	7
1PGDCA4(A) - MySQL Database Management	9
1PGDCA4(B)MS-Access Database Management	11
Emerging Digital Technologies	13
Web Development Technologies	15
2PGDCA3 (A)–Financial Accounting with Tally.....	17
2PGDCA3 (B)–Linux and Cyber Security Fundamentals.....	19
2PGDCA4 (A)–Multimedia Design and Production	21
2PGDCA4 (B)–Data Visualization with Power BI.....	23

1PGDCA1- Computer Fundamentals and AI Concepts

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, Supercomputers : characteristics and area of uses, Primary Vs Secondary Memory, RAM, ROM, EPROM, PROM. Storage Devices- Hard Disk, Flash drives, Solid-State Drive (SSD).

UNIT-II:

Input Devices: Keyboard, Mouse, Trackball, Scanners, Digitizing Tablet, Digital Camera, MICR, OCR, OMR, Light Pen, Barcode Reader, Quick Response Code (QR Code), Voice Recognition, Touch Screen. Output Devices: Monitors- Types of Monitor, Size, Resolution, Refresh Rate, 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: Merits and Demerits, Introduction to Assemblers, Compilers and Interpreter. Introduction to Word Processing, Spreadsheet, Presentation Graphics, Data Base Management, Communication Software, Multimedia Software. Computer coding system-ASCII, ISCII and Unicode, Number System - Binary, Octal, Decimal, Hexadecimal.

UNIT-IV:

Use of communication and IT, Communication Process, Component of communication– Sender, Receiver, Transmission, Medium & Protocol, Communication types- Simplex, Half Duplex, Full Duplex. Communication Channels- Twisted, Coaxial, Fiber Optic, Modem-Working and characteristics. Types of network- client/server and peer-to-peer networks, Types of connections Dialup, Leased Lines, ISDN, RF, Broadband, Types of Network- LAN, WAN, MAN, Internet, VPN, Components of LAN-Media, NIC, NOS, Network devices - Bridges, HUB, Routers, Repeater, Gateways.

UNIT-V:

Introduction to AI, History, Definition, and Applications of AI, Types of AI, 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.

1PGDCA2 – PC Packages with AI Essentials

UNIT-I:

Operating System (Windows 11): Overview of Windows Operating System, Basic Operations How to Start a computer, login, logoff, shutdown. Personalizing Desktop- Desktop Background, Screen Saver, Themes, Setting date & time, Task bar, Files & Folders, Create, Copy, Rename, Moving & Delete Files & Folders, Create & Using Shortcuts, Recycle Bin. Accessories-MS Paint, Notepad, WordPad, Windows Media Player, Calculator, Control Panel Language Settings, add, Remove or Configuring New or Existing Devices, Software and fonts, Enhance the Performance of Computer- Using Disk Clean-up, Using Disk Defragmenter. Introduction to AI and its Relevance in daily computing tasks, Overview of AI Productivity Tools (ChatGPT, Copilot, Gemini, Notion AI), Overview of AI-powered features in Windows (e.g., Copilot).

UNIT-II:

Modern office activities and their software requirements, Introduction to various office Suits, like OpenOffice, Libre Office, WPS office, Google Docs & Microsoft office. MS Word (2019): Introduction to MS Word, Features & Area of use. Working with MS Word, Menus & Commands, Ribbon, Toolbars & Buttons, Shortcut Menus, Wizards & Templates, Creating a New Document, Different Page Views and layouts, Applying various Text Enhancements- Fonts, Styles, Text Attributes, Formatting Text and Documents: Auto format, Paragraph and Page Formatting, Line spacing, Margins, Borders and Shading, Tabs and Indents, Text Editing using various features, Bullets, Numbering, Working with Styles, Printing & various print options, Spell Check Working with Headers and Footers. Creating and editing and other activities in Table, Introduction to Google Docs, Smart Compose, AI Summarizer.

UNIT-III:

Graphics in MS-word (2019): Importing graphics, Clipart, Insert Picture, Using Clip Art, Shapes and SmartArt in documents, Using Drawing Features, WordArt and DropCap Features, Use of Templates. Mail Merge, Envelops & Mailing Labels, Importing and exporting to and from various formats, Macros and their use, Creating Professional Reports with AI-generated Templates, Using AI tools for grammar checking and Content Suggestion

UNIT-IV:

MS Excel (2019) basics & features, concepts of Workbook & Worksheets, Using Wizards, Various Data Types, Selecting cells, Entering and editing Text, Entering and Editing Numbers, Removing & Resizing of Columns & Rows, Entering and Editing Formulas, Referencing cells, Moving cells, Copying Cells, Sorting Data, Inserting Rows and Columns, Different Views of Worksheets. Formatting: Cell Formatting, Changing Column widths and Row heights, auto format, changing font sizes and Attributes, Centering Text across columns, Using border buttons and Commands, Changing Colors and Shading, Hiding Rows and Columns Splitting, Merging, Working with Data & Ranges, Column Freezing. Charts in Excel: Chart parts and Terminology, chart wizard, different Types of charts, Printing charts, deleting charts,

Using AI in Excel: Data Insights, Trend Prediction, Using AI features like —Analyze Data and ChatGPT for formula generation.

UNIT-V

MS PowerPoint(2019): Introduction & Area of use, 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 Backgrounds, Change Size, Using Animation and Transitions in Presentation, Printing Presentations, Notes, Handouts, Slide Master, Handout Master and Notes Master. Overview of AI Tools for Presentation Creation (Beautiful.ai, Tome, Canva AI), Generate an AI-based presentation using online tools

1PGDCA3(B)- Programming with Python

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+, readread(), 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 tryexcept-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.

1PGDCA3(B) - Digital Publishing: PageMaker, Photoshop & InDesign

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 its 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.

1PGDCA4(A) - MySQL Database Management

UNIT-I:

Introduction to database concept , Need of database, Flat Database, Database Management System, Characteristics of DBMS, Relational Database, Concept of keys, Database Applications Database Elements - Tables, Query, Form, Report, Introduction to Client Server model.

UNIT-II:

MySQL 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, 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 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 MySQL 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.

1PGDCA4(B)MS-Access Database Management

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.

Emerging Digital Technologies

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.

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 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

Web Development Technologies

UNIT-I:

Introduction to Internet, Internet Evolution & Concept, Internet Vs Intranet, Internet Service Provider (ISP) & its Function, URLs, Portals, Internet Services and 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.

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

UNIT-IV:

Designing Websites with Expression Web, 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.

2PGDCA3 (A)–Financial Accounting with Tally

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: 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.

2PGDCA3 (B)–Linux and Cyber Security Fundamentals

UNIT I:

LINUX BASICS AND ESSENTIAL TOOLS: Introduction to Linux: Linux Distributions (Ubuntu, CentOS, Kali Linux), 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, 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, Working with text file Displaying File 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, Managing Password Properties, Understanding User and Group Configuration Files (/etc/passwd, /etc/shadow, /etc/group), Understanding the root user, Using su and sudo Commands, using SSH to Connect to a Remote Server, Working with Systemd, 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 Understanding DNS and DHCP Basics.

UNIT III:

CYBERSECURITY FUNDAMENTALS: Introduction to Cybersecurity, Definition and importance of cybersecurity, Need for security in the digital world, Key concepts: Confidentiality, Integrity, Availability (CIA Triad), Types of Cyber Threats and Attacks, Malware: Virus, Worm, Trojan Horse, Ransomware, Phishing , Denial of Service (DoS), Password attacks, Basic Security Mechanisms, Authentication and authorization, Password security and best practices, Firewalls and antivirus software, Cyber Hygiene and Safety

Practices, Safe internet browsing, Email and social media security, Data backup and recovery basics, Awareness of cyber laws and ethics, Password Security, Creating Strong Passwords, Using Password Managers, Understanding HTTPS vs HTTP, 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, Network Scanning with Nmap, Basic Nmap Scans (Host Discovery, Port Scan), Packet Analysis with Wireshark, Network Packet Analysis, Analyzing Common Protocols (HTTP, DNS, TCP), Introduction to Password Cracking, Using John the Ripper Tool for Password Cracking, Cracking ZIP and RAR Password Protected Files, Dictionary Attacks and Wordlists, Introduction to Hashcat Tool, Introduction to Airodump-ng Tool, Understanding WPS Vulnerabilities, Wireless Security Best Practices.

UNIT V:

CYBERSECURITY AWARENESS & DIGITAL SAFETY : Securing Personal Email Accounts, Securing Gmail Account , Enabling Two-Factor Authentication (2FA), Account Recovery Setup, Checking security activity, Removing unknown devices, 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, Credit/Debit Card Safety, CVV importance, Types of financial Frauds, Mobile Device Security, Android Security Settings, Google Play Protect, Security updates, App permissions review, Common Cyber Frauds in India, 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.

2PGDCA4 (A)–Multimedia Design and Production

UNIT-I:

Introduction to Multimedia, Multimedia Definition and concept, Need of Multimedia, Applications of Multimedia , Development platforms for multimedia, Types of multimedia: Linear and Non-linear, Identifying Multimedia elements Text, Images, Sound, Animation and Video, Multimedia Hardware and Software requirement. Making simple Multimedia with Power Point Text as a component of Multimedia, Concepts of plain & formatted text, RTF & HTML texts, Object Linking and Embedding concept, Fonts– need & types, Importance of sound in Multimedia, Importance of Graphics in Multimedia, Video and Animation in Multimedia.

UNIT-II:

Introduction to Image, Image types- Raster and Vector graphics, Image file formats (JPEG, PNG, GIF, BMP, TIFF), Basics of graphic design (color theory, resolution, composition), Image editing tools and techniques. 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-III:

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-IV:

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

UNIT–V:

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

2PGDCA4 (B)–Data Visualization with Power BI

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.

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, Pagelevel, 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.