



INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

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<http://www.ihrd.ac.in>

DIPLOMA IN COMPUTER APPLICATIONS

(6 Months)

Scheme & Syllabus 2024

(Effective from January 2024 admission)

*Note: Topics given in italics are included as per G.O.(M.s) No. 10/2019/ITD dt. 04-06-2019,
for Elementary and Supervisory level syllabus for standardized IT Courses.*



INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

DIPLOMA IN COMPUTER APPLICATIONS
(One Semester)

Subjects of study and Scheme of Assessment
(Scheme-2024)

Subject Code	Subject Name	No. of Hrs/Week		Minimum Marks			Maximum Marks		
		T	P	W/P	CE	T	W/P	CE	T
DCA101	Hardware, Networks & Web Technology	2	-	30	10	50	75	25	100
DCA102	Office Automation & AI	2	-	30	10	50	75	25	100
DCA103	Business Automation & Digital Marketing	2	-	30	10	50	75	25	100
DCA104	Lab Practice - 1 (Windows, Linux, Hardware & Networking)	-	3	30	10	50	75	25	100
DCA105	Lab Practice - 2 (Office Automation, Multimedia)	-	3	30	10	50	75	25	100
DCA106	Lab Practice - 3 (Tally, AI & Digital Marketing)	-	3	30	10	50	75	25	100
Total Duration : 240 Hrs		6	9	TOTAL MARKS			450	150	600

* T- Theory P - Practical W - Written CE-Continuous Evaluation T – Total

Module 1 – Computer Fundamentals

(10 Hrs)

Introduction to Computer - Familiarity with the basic components of computers and computer terminology - Characteristics of computer, e-governance, multimedia etc.

Concept of Hardware and Software - Block diagram - functional units - Input, Output, Memory, CPU.

IO-Devices - Familiarization of IO-Devices - Keyboard, mouse (optical, wireless), scanners - Monitor - Types of monitors(LED,TFT)-Pixel, Resolution - LCD projector - Printers -Type of printers - Dot matrix, Inkjet, Laser, Thermal. (2 hrs) Memory - Primary memory - RAM, ROM, Flash memory - Secondary Storage - Hard disk, SSD, Storage capacity, Optical storage devices - CD, DVD - Flash disk. CPU - Microprocessor - concept of ALU and control unit - familiarization of latest processors (Intel, AMD etc. Concept of Cache memory.

Software - Definition, Types of software - System software, application software, Mobile Apps

Module 2 – Windows, Linux & Mobile OS

(8 Hrs)

Introduction to GUI Based Operating System - GUI based operating system - File Management

Operating system Overview - Definition - Functions-as a resource manager, as an Interface - CUI, GUI, POST and Bootstrapping. User Accounts, Windows Shell - CMD command and its use.

Concept of open source software -GNU/Linux - Different distribution of Linux - Features of Linux - Comparison of Windows and Linux operating systems.

Configuring system - Hard Disk Partitioning - formatting - CMOS setup - Display and audio configuration. Case study of OS installation (windows, Ubuntu Linux) - Service pack - OS updation - concept of boot loader.

Mobile OS - introduction only, examples - Android, iOS, Windows Mobile

Module 3 - PC Hardware

(7 Hrs)

Identification of Hardware components - motherboard, processor, memory (DDR3, DDR4), HDD, DVD writer, Graphic system (AGP, PCI Express) - SMPS - NIC, Ports - parallel, USB, PS/2, audio ports, Ethernet.

Installation and configuration of peripherals such as printers, scanners, projectors etc. - Awareness on Installation of software, virus scan -Awareness on Data Centre, BCP, DR and its major components.

Device connectivity - Ethernet, Bluetooth, wireless, mobile connectivity, modem.

Sample system specification for home, office and special purpose computers/Laptops. Major brands and approximate pricing of PCs/Laptops

Module 4. Networking Concept

(8 Hrs)

Infrastructure - Awareness on LAN, WAN Infrastructure and its components. need and advantages - wired & wireless Networks. Concept of IP Address, subnet mask. Network Devices - Switch, router, access points, Extender, RJ45 connecter, CAT6 Cable, Crimping tool.

Internet Basics - URL, Domain - concept of DHCP, DNS, gateway. WWW - Web protocols (HTTP, HTTPS, FTP) - Internet configuration - Linux & Windows - Concept of firewall, Proxy server, Web server. Concept of Cyber security - phishing, id theft, spoofing, Denial of Service etc.

Module 5. Email, Search Engines & WEB Utilities

(7 Hrs)

Browsers - Introduction to Internet, WWW and Web browsers - Cookies, caches, history etc.

Communication and collaboration tools like Skype, Google docs/sheets etc. - Emails, messaging,

Use of Calendars and meeting management using Calendars - Awareness on Cyber Security Act and IT Act

different browsers, Options and settings, Search engines - downloading and saving web documents - download managers. Email - email id creation, compose, attach, send, inbox, spam, trash, CC, BCC, address book, reply, forward.

Email client - Microsoft outlook - setting up Email, *Calendars and meeting management.*

Online Meetings & Video conferencing - WEB Cam & Microphone, Skype, Zoom, Google Meet

Online Products - Google Drive, Google Forms, Groups, Calendar, Drawings, Slides

Reference:

1. Computer Fundamentals - B RAM
2. Upgrading and repairing PC's – Que publications
3. <https://ubuntu.com/tutorials/command-line-for-beginners#1-overview>

DCA102 Office Automation & AI

Duration: 40 Hrs
(20 Hrs)

Module 1 - Office Automation Packages

Introduction of Office automation, Office automation software packages – MS Office & Libre Office.

Elements of Word Processing - Document creation saving, editing, insertion of tables etc. in document

Introduction to Word Processing – advantages – famous word processing software – MS Word & Writer

MS Word features demonstration - Menu – Tool bar – Document – creation, editing, saving docs. .doc, .docx formats. Find & Replace – options, Layouts, Margins, Borders, Tables, Headers & Footers, Page Numbering, Inserting images and other objects. Protecting docs with password.

Online Word Processing Tools – Google Docs – advantages, sharing with others.

Document templates, creation, uses. Mail merging – uses.

(8 Hrs)

Office Packages - Create, save, and effectively work with Spreadsheets including formulae and chart - Cell manipulation, Insertion and deletion of rows, columns, chart, graphs, function etc.

Introduction to spreadsheet, advantages, famous spreadsheet software – MS Excel & Calc

MS Excel features demonstration - work book, work sheet, Rows & columns, Cell, Cell Address, Cell range, cell / range selection, saving work sheet. .xls, .xlsx formats. Protecting with password.

Inserting Charts - different types & options. Formulas, functions - cell reference – absolute, relative & mixed mode. Printing – print preview - print area - cell protection, freezing rows & columns, borders.

Data - filter, sorting - hiding and displaying data. Pivot tables. Macros basics.

Online Spreadsheet tools – Google sheet – advantages, sharing.

Overview of Excel AI tools - Data cleaning and preparation, Data extraction, Idea generation, Predictive modelling

(10 Hrs)

Concept of Databases – uses – MS Access (awareness only)

Presentation Software - Create, save and work on presentation software -Demonstrate Software like Power Point.

Introduction to presentation, uses, famous presentation softwares – Powerpoint & Impress.

Powerpoint features - Creating slides – inserting pictures and images – Apply 3D effect, shadows, back ground fill colors, textures and pattern. – Animation – insert sounds and movies - slide transition - Slide show set up - insert navigation to slides- presentations and URL's – apply and edit timings – create a customized slide show. (2Hrs)

Module 2 – DTP & Graphics

(6 Hrs)

Desktop publishing software and its functionality - working with publication, new publication, opening a publication, drawing tools- grouping and ungrouping, control palette, power pasting, paste multiple, Importing graphics, place commands, cropping tools, text tools – adding, changing and manipulating text - importing text- placing text, threaded text, master pages, character specification and paragraph specification. (4 Hrs)

Image Editing – introduction, tools for image editing – basic image editing features using Paint/GIMP/Photoshop(2Hrs)

Module 3. - Web Designing - HTML & CSS

(5 Hrs)

Introduction to Hyper Text Mark-up Language - Concepts of HTML, The structure of a HTML page. basic HTML Tags. Concept of CSS, basic styling elements, Basic Webpage design

Module 4 – Artificial Intelligence

(5 Hrs)

Introduction to AI, Generative AI, Machine Learning, AI in our daily life, Familiarization of AI Tools – ChatGPT, Bard, DALL E- 2, Midjourney.

Introduction to modern technologies (terms only) – IoT, Cloud Computing, Bigdata, Intelligent Robotics, AR & VR, 3D Printing.

Module 5 – AI Ethics

(4 Hrs)

Introduction – AI Ethics, primary concerns of AI today, privacy, safety & security, transparency & explainability, responsibility & accountability, adaptive governance. *Awareness on Cyber Security Act and IT Act*

References:

1. Office 2016 All-In-One For Dummies - Peter Weverka
2. <https://edu.gcfglobal.org/en/subjects/office>
3. <https://www.w3schools.com/html>
4. https://www.tutorialspoint.com/artificial_intelligence/artificial_intelligence_overview.htm
5. Adobe PageMaker 7.0 Classroom in a Book
6. <https://www.unesco.org/en/artificial-intelligence/recommendation-ethics>

DCA103 - Business Automation & Digital Marketing

Duration: 40 Hrs.

Module 1 –Tally.ERP9 based Accounting (10 Hrs)

Introduction to Financial Accounting, double-entry accounting, chart of accounts, ledgers, vouchers, JV, PV, RV, Contra voucher, Credit Note, Debit Note, SoA – statement of accounts, Receivables, Payables, daybook, trial balance. Balance sheet & PL. (6 Hrs)

Accounting basics - Familiarization of tally menus- configuring tally – Ledger creation/editing – Voucher Entry – corrections –Voucher types – report generation - Printing - Bank reconciliation. (2 Hrs)

Introduction to Digital Financial Services - Introduction to Internet based financial services and awareness of various schemes of Govt. of India. Awareness of various Digital Financial services modes (like net banking, mobile banking, Payment Apps etc.), Concept of Digital Currency. 2 Hrs)

Module 2 – Major Business Modules (10 Hrs)

Need and advantages of Business automation.

Enterprise Business Modules - (Familiarization of terms only) Customer relation management(CRM), Human Resources Management (HR), Production, Inventory, Sales, Marketing, Finance. (3 Hrs)

Inventory Management (Stock Management) – Introduction, Inventory workflow - RFQ(request for Quotation), Quotation, PO/LPO (purchase order/Local Purchase order), GRN(Goods Receive Notes), Bill/Invoice, DO (Delivery Order), Goods Returns, Sales, Sales Returns, Stock verification & Adjustments. Barcode- product coding. (3 Hrs)

ERP (Enterprise Resource Planning) - Introduction, features & advantages,

Major ERP software – SAP, GP Dynamics, Oracle Financial, Navision (Terms only) . (2 Hrs)

eCommerce, mCommerce – Introduction, advantages, examples (amazon, flipkart etc.)

SaaS - Software as a Service - Introduction, advantages, examples, (Zoho Books, Tally.NET subscription etc.) (2 Hrs)

Module 3. Business & Auto ID Devices (6 Hrs)

Attendance & Access Control - Biometric devices, palm/face detection devices,

Security & Surveillance – CCTV camera, DVR/NVR, Anti-Theft gates & Doors

POS – Point of Sales – Barcode Scanners (hand-held & vertical), thermal printer, customer pole display, auto-activated cash-drawers, barcode printers, programmable keyboards, MSR, PDA/PDT & Mobile printers

Module 4. Communicative English (6 Hrs)

Speaking: Greeting - introducing oneself - making requests - asking permission - giving instructions - making suggestions - agreeing and disagreeing - questioning - reporting - dealing with enquiries

Letter Writing - Different kinds of letters – Personal and Official – Business letters – Government letters – company correspondence, request for appointments – trade enquires & replies.

Module 5. Social Media impact on Business (8 Hrs)

Basics of Social Media - Social Platforms – Facebook, Instagram, LinkedIn, Twitter(X), Youtube, Podcast Social Media Presence – Websites, Blogs, Business Pages, Channels (4 Hrs)

Introduction to digital marketing, advantages – Brand awareness, customer satisfaction, extended reach, reduced marketing costs etc. (4 Hrs)

References:

1. Teach Yourself Tally ERP 9 Mr. Niranjan Jha
2. <https://softwareconnect.com/erp/erp-modules/>
3. <https://www.linkedin.com/pulse/impact-social-media-business-digitalloudad>
4. https://www.tutorialspoint.com/digital_marketing/index.htm
5. <https://www.vskills.in/certification/tutorial/inventory-basics/>
6. <http://cdn.cnetcontent.com/fd/7b/fd7b1406-ae4c-46eb-b3eb-01be3a9a458e.pdf>

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DCA104 Lab Practice-1 (Windows, Linux, Hardware & Networking)

Duration :40 Hrs

Module 1 – Windows & Linux (10 Hrs)

Familiarization of windows Desktop, taskbar, icons, mouse operations, utilities - paint, notepad etc. Files and Folder manipulation - create, copy, move, rename, delete. windows explorer - control panel - recycle bin - Managing user accounts - Desktop management - Searching files. Demonstrate CMD Shell.

Shell commands in Ubuntu Linux (ls, date, cp, mv, rm, mkdir, rmdir, cd, cat, man, who etc.) – Files and folder manipulation in Linux GUI - User management - Familiarisation of Linux file system - Mounting Windows partitions. Familiarisation of Linux utilities - Calculator, Text editor etc. Demonstrate - OS installation (windows & Linux), Configuring Windows - Service pack installation - OS updation, Configuring Linux system – creating user accounts.

Module 2 – PC Skills (10 Hrs)

Identification of Hardware & Network components – Demonstrate - motherboard, processor, RAM, HDD, DVD writer, SMPS, UPS, Connectors and slots in motherboard. Ports - serial, parallel, USB, PS2, audio ports, PCI slots, NIC.

Identifying system configuration (Through CMOS, Windows or any other software).

Display and audio configuration, Device Manager

Installing and connecting various Devices - Printers, scanners, Ethernet, Blue tooth, wireless, mobile, modem, projector - Install printer cartridges.

Familiarizing Hard Disk Partitioning & formatting. Antivirus installation, DVD Burning using software like Nero, CD/DVD creator in Linux etc.

Module 3. Networking Concepts (6Hrs)

Demonstration of Internet connection methods (DSL, Cable, Wireless) – Ubuntu & Windows.

Demonstration of Proxy server and firewall configuration.

Familiarisation of Network Components- cable, connector, switches, hub, access point, NIC

Installation of network driver. Setting up a LAN - Connecting a system to a network, Assign of IP address and subnet mask, Gateway in Windows & Linux. Usage of trouble shooting commands (ping, ipconfig, ifconfig, traceroute, mii-tool). File & Printer sharing, Remote Desktop Connection – Anydesk/Teamviewer demo, Cloud storage & backup – google drive, icloud etc., NAS

Module 4. Internet & Web Utilities (6Hrs)

Browsers - Chrome, Edge, Mozilla, Opera - Cookies, caches, history etc.

Chrome - Browser Options and settings, Search engines - downloading and saving web documents - download managers. Email - email id creation, compose, attach, send, inbox, spam, trash, CC, BCC, address book, reply, forward. Setup Microsoft outlook as Email client, Calendars and meeting management.

Setup online Meetings & Video conferencing in Zoom/Google Meet. Creating Google Forms, Online File Conversion – PDF to DOC.

Introduction to Web Forms (Familiarisation of Online Forms like PSC application, E-grantz, Keralapsc.org,mvd.org)

Module 5 : Malayalam computing & Data Entry (8 Hrs)

Practical/Hands on sessions - Transcription and typing of dictated passage in English and Malayalam. Installation of Malayalam fonts like rachana, meera, kartika etc.- enabling Malayalam in windows and linux – ISM software – get phonetic keyboard using varamozhi in Windows and using swarnalekha in linux. English & Malayalam data entry practice.

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DCA105 Lab Practice-2 (Office Automation, Multimedia)

Duration :40 Hrs.

Module 1: Word Processing (MS Word/ Writer) (12 Hrs)

Practical/hands on sessions - Drafting/Noting using computer - Format documents

Word processing packages – features – Menu – Tool bar, creating, saving & editing documents, Page setup-orientation, margins, header & footer, page numbering, formatting text –Font, size, colours, styles layouts, themes, selection, copying, Moving, Deleting, Inserting , Undo, Redo, Newspaper column, alignment, spacing, indents, bullets & numbering, borders, Find & Replace, spell check, Tables – creation, merging, splitting rows and columns, formatting – Converting doc file to pdf format – mail merge– printing a document. Creating & Using Document Templates.

Module 2: Spreadsheet (Excel / Calc) (12 Hrs)

Electronic spread sheet, features, Menus, Toolbar, Cells, Rows, Columns, saving worksheet, Workbook – selecting cells, formula – copying, cell reference. Auto sum, worksheet – moving, copying, deleting, Data - filtering, sorting – Formatting Cells & cell content, find & replace, spell check, insert / delete row, column, freezing, splitting, Hide / Unhide, cell protection – Charts - Title, legends, saving, if command, moving and copying between sheets- formula, functions (sum, average, if, count, max, min, sin, sumif, hyperlink) and macros – working with range names. Transferring spreadsheet information to a word document. Printing worksheet-setting Print area. Pivot Table & Charts, Macros

Module 3. Embedded AI in Excel (4 Hrs)

Embedded AI in Excel – Flash Fill, Data cleaning & preparation, Data Analysis options, Insert data from picture, Power Query

Module 3: Presentation (Power Point/ Impress) (6 Hrs)

Create presentations - Application of presentation -Demonstration of Presentation Software like Power Point

Starting presentation software, menu bar, title bar, status bar, tool bar – creating new presentation by using blank presentation, by using template- viewing presentation – slide- insertion, deletion – enter, edit and create new text object – change and correct text, spell check – color, style, themes, header and footer, add clipart picture, graphic & other objects, Animation - set transition, animate objects on a slide , add sound and movies, adding links to a slide. Printing slides.

Module 4. Graphics & Multimedia (6 Hrs)

Basic image editing using Photoshop / GIMP, selection tools, paint tools, color tools, transform tools etc.

References:

1. <http://www.free-training-tutorial.com/>
- 2 <http://tools.malayalam.kerala.gov.in/>
- <https://sqlspreads.com/blog/excel-ai-tools/>
- <https://www.youtube.com/watch?v=dSpi2o5b1NY>

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DCA106 Lab Practice-3 (Tally, AI & Digital Marketing)

Duration :40 Hrs

Module 1. Tally.ERP9 based Accounting (8 Hrs)

Familiarisation of tally menus- configuring tally – Company creation/selection, Ledger creation/editing – Voucher Entry/Edit – Voucher types (PV, RV, JV, Contra, Sales, Purchase – Daybook – GL – Trial Balance - Printing - Bank reconciliation - report generation.

Module 2 : DTP software (Pagemaker 7.0) (8 Hrs)

Working with publication – drawing tools – grouping and ungrouping, control palette, paste multiple – importing graphics , place commands , cropping tools, text tools- adding , changing and manipulating text – importing text- placing text, master pages-character specifications – paragraph specification – Column and page break – Spelling check – styles – paragraph styles. Printing - Create pdf

Module 3. Artificial Intelligence (10 Hrs)

AI Tools – Google search for right AI Tool for various tasks
ChatGPT – account creation & setup, prompting for various requirements, re-generate.
Generate various kinds of letters for specific tasks.
Download & install AI image generator Tools - DALL-E 2 and Midjourney, Generate images.
Synthesia – AI video generator
Jasper – AI Writing tool
Jukebox – Music generator

Module 4. Digital Marketing (8 Hrs)

Creating Social Media Accounts – Facebook, Instagram, Twitter(X), LinkedIn, YouTube
Setting up social media page
Creating Business Pages & Channels.
Content creation (basics) -
Facebook Ads Manager - Facebook Ads Campaign
Target customer on the basis of gender, age, location & more - narrow & broad audience
Key elements of Landing Page
Free & Paid Ads in Facebook & Instagram.

Setup Google Ads Account
Different networks of Google Ads
automated and manual bidding strategies

Creating YouTube channel –
setup YouTube Ads and target the right audience

Module 5. Web Page Designing using HTML (6 Hrs)

HTML basics, The structure of a HTML page, Basic Webpage design, basic HTML & CSS Tags. Styling elements.
Design simple web page. Using free templates & themes for quick design.

References :

1. https://www.tutorialspoint.com/digital_marketing/index.htm
2. <https://www.scribd.com/doc/36456455/Adobe-PageMaker-Tutorial>
3. https://www.w3schools.com/gen_ai/

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DIPLOMA IN COMPUTER APPLICATIONS

1. Question paper pattern

Duration of Exam.: 3Hrs . Maximum Marks: 75.

Section A: Multiple Choice/Fill in the Blanks/One Word Type Questions

Section B: Short answer type questions with answer size up to $\frac{1}{4}$ pages per question

Section C :Descriptive type questions with answer size up to $\frac{1}{2}$ page per question

Section D :Descriptive type questions with answer size up to 1 page per question.

Marks Distribution

Section	No of questions	Need to be answered	Marks/ Question	Total
A	10	10	1	10
B	12	10	3	30
C	7	5	5	25
D	2	1	10	10
Total				75

Remarks:

- Each part should cover questions from each module in the syllabus.
- The level of difficulty shall be as follows
 - Easy Questions : 30% -40%
 - Intermediate level to difficult : 30% -40%
 - Difficult questions : 20% -30%
- The question paper setters must prepare and submit the question papers as per the following guidelines.
 - Question paper must be designed and prepared to fit in an A4 size paper with one-inch margin on all four sides.
 - Prepare the Question in MS-Word/Open Office-Write document format. Use only "Times New Roman" font with size 10. Align text to both left and right margins.
 - Please leave 5 cm. free area at the top of the front page of each question paper to place examination details/Question paper header by the examination department.
 - Avoid placing 1 or 2 questions in the last part in a fresh page, unless it is absolutely necessary. In such case, try to accommodate above questions in the previous page(s) by adjusting top/bottom margins and line spacing, if possible. This will reduce printing expenses.
 - Specify marks for each question/part clearly.
 - Clearly specify the number of questions to be answered for each Part.
 - Confirm that no questions in part B is repeated in Part C also.
 - Avoid repeating questions in Part C from the immediate previous examination.
 - Key for evaluation must be prepared and enclosed in a separate cover and should be submitted along with the question paper set. Key for evaluation must specify evaluation guidelines for each part in the question paper, otherwise the key prepared will be treated as incomplete.
 - Submit Question paper in Laser print out form only. Hand written and printed in poor quality printers is not acceptable.

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DIPLOMA IN COMPUTER APPLICATIONS

2. Scheme for Continuous Evaluation.

1. For Theory Papers : Weightage

- a). Average of minimum Two test papers : 30%
- b). Average of minimum Two Assignments : 30%
- c). Score for Class Attendance. : 20%
- d). Overall performance in the class. : 20%

2. For Practical Papers: Weightage

- a). Average of minimum Two Lab tests : 30%
- b). Average of minimum Two Lab Assignments : 30%
- c). Score for Lab Attendance. : 20%
- d). Overall performance in the Lab. : 20%

3. Teachers shall submit Mark list for Continuous Evaluation to the Head of Institution in the following format.

Subject:

Sl no.	Regno.	Name	a.Test	b.Assignment	c.Attendance	d.performance	Total

4. Head of Institution/Co-ordinator shall forward Continuous evaluation marks to the Examination Department in the following format only.

Centre:

Sl no	Regno.	Name	DCA101	DCA102	DCA103	DCA104	DCA105	DCA106
			25	25	25	25	25	25

5. Continuous evaluation(CE) marks must be published in the notice board at least one week before the commencement of theory examinations after getting approval from the Head of Institution/Co-ordinator.

Thiruvananthapuram
16.02.2024

Sd/-
Director