INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Prajo'e Towers, Vazhuthacaud, Thiruvananthapuram, Kerala, India. Pin695 014

http://www.ihrd.ac.in

DIPLOMA IN
COMPUTER APPLICATIONS

(6 Months)

Scheme & Syllabus

2020

(Effective from January 2020 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-2020)

Subject Code	Subject Name	No. of Hrs/Week		Minimum Marks			Maximum Marks		
		T	P	W/P	CE	T	W/P	CE	T
DCA101	PC Hardware & Operating Systems	2	-	30	10	50	75	25	100
DCA102	Office Automation Packages	2	-	30	10	50	75	25	100
DCA103	Networking & Web Technology	2	-	30	10	50	75	25	100
DCA104	Lab Practice - 1 *(Windows, Linux, PC Hardware)*	-	3	30	10	50	75	25	100
DCA105	Lab Practice - 2 *(Office Automation Packages, Data Entry)*	-	3	30	10	50	75	25	100
DCA106	Lab Practice - 3 *(Network, PC Skills, Internet)*	-	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

DCA101 PC Hardware & Operating Systems

Duration: 40 Hrs

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. (2 hrs)

IO-Devices - Familiarization of IO-Devices - Keyboard, mouse (optical, wireless), scanners – Monitor - Type of monitors(LED,TFT)-Pixel, Resolution - LCD projector – Printers -Type of printers - Dot matrix, Inkjet, Laser, Thermal. (4 hrs) Memory - Primary memory - RAM, ROM, Flash memory - Secondary Storage - Hard disk - concept of track, sector, cylinder, Storage capacity, SMART(concept only), Hard disk types - SATA,SCSI, SAS - Optical storage devices - CD, DVD - Flash disk. (2 hrs)

CPU – Microprocessor - concept of ALU and control unit - familiarization of latest processors (Intel, AMD etc.), Multi core processors – Wσrdlength , Clock Speed,Concept of Cache memory.(2 hrs)

Module 2 - Windows   (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 - Structure of OS - Kernel, Shell - POST and Bootstrapping. (2hrs)

Windows - Shell commands - (DATE, TIME, DIR, COPY, REN, DEL,MD, CD, RD, TYPE),

Files and Folder manipulation - create, copy, move, rename, delete - Sharing of folder and printer - Managing user accounts. (6hrs)

Module 3 –GNU/Linux   (7 Hrs)

Concept of open source software –GNU/Linux – Different distribution of Linux - Features of Linux - login, Shell commands in linux (ls, date, cp, mv, rm, mkdir, rmdir, cd, cat, man, who) - Files and folder manipulation in Linux GUI - User management - Concept of Linux directory structure. (5hrs)

Comparison of Windows and Linux operating systems.(2hrs)

Module 4 - PC Hardware   (10Hrs)

Identification of Hardware components - motherboard, processor, memory (DDR3,DDR4), HDD, DVD writer, Graphic system(AGP,PCI Express) - SMPS - NIC (2hrs)

Ports - parallel, USB, PS/2, audio ports, Ethernet. (1hrs) Device Driver installation (Printers, scanners) (3 hrs)

Device connectivity - Ethernet, Bluetooth, wireless, mobile connectivity, modem.Sample system specification for home, office and special purpose computers. (4hrs)

Module 5 - OS Installation   (5 Hrs)

Configuring system - Hard disk Partitioning – formatting - CMOS setup – Display and audio configuration. (2hrs) Case study of OS installation (windows, Ubuntu Linux) - Service pack - OS updation - concept of boot loader - software installation (3hrs)

Reference:

1. Computer Fundamentals - B RAM
2. Upgrading and repairing PC's – Que publications
3. http://en.wikipedia.org/wiki/linux

* * * * * * *

[Scheme 2020]

DCA102   Office Automation Packages

Duration: 40 Hrs

Module 1 - Word Processing (10 Hrs)

Elements of Word Processing - Document creation saving, editing, insertion of tables etc. in document
Introduction – Menu – Tool bar – Document – creation, editing, saving, opening- Text – editing , deleting, inserting, selection, moving, copying, converting case, find & replace, redo/undo - Formatting document – paragraph formatting – applying styles , header and footer, bullets and numbering, format painter ,line spacing – page layout – numbering pages - inserting section break – spell check - news paper column - Printing Document - page setup, inserting picture
Tables - creation, editing, formatting, insertion, merging, splitting rows and columns, document with tables. Mailmerge and template creation.
Malayalam computing -Familiarization of Malayalam fonts, Malayalam Transliteration, Enabling Malayalam in Windows and Linux.

Module 2 - Spreadsheets (13 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.
Electronic spreadsheet features, work book, work sheet, menu, cells - entering data, text, functions – selecting cell – ranges- saving work sheet- editing work sheet data – copying , cut & paste - inserting , deleting rows, columns, cell ranges- find and replace data – Formatting work sheet – Changing column width, row height , aligning data – controlling text within a cell - changing font size, style - applying border, pattern styles.
Charts - different types - titles and legend, saving , moving and copying between sheets.
Formulas, functions - entering formulas- cell references –functions (sum, average, if, count, max, min, sin, sumif, hyperlink) - working with range names
Printing – print preview - setting print area - headers and footers- inserting, removing page break - cell protection, freezing columns - data - auto filter, sorting - hiding and displaying data .

Module 3 - Presentation Software (5Hrs)

Create, save and work on presentation software -Demonstrate Presentation Software like Power Point
Create presentation with back ground – inserting pictures and images - change position or lay out of pictures – Apply 3D effect, shadows, back ground fill colors, textures and pattern. – multimedia – insert sounds and movies - slide transition - introduce animated objects.
Slide show set up - insert navigation to slides- presentations and URL's – apply and edit timings – create a customized slide show.

Module 4 - DTP (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.

Module 5 –Tally.ERP9 based Accounting (6Hrs)

Accounting basics-Familiarisation of tally menus- configuring tally – Ledger creation/editing – Voucher Entry – corrections –Voucher types – report generation - Printing - Bank reconciliation.
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 etc.)

References:
1. Office 2016 All-In-One For Dummies   - Peter Weverka
2. Office 2013 Library Excel 2013 Bible, Access 2013 Bible, PowerPoint 2013 Bible, Word 2013 Bible Lisa A. Bucki
3. Adobe PageMaker 7.0 Classroom in a Book
4. Teach Yourself Tally ERP 9 Mr. Niranjan Jha

* * * * * * *

[Scheme 2020]

DCA103 Networking & Web Technology

Duration: 40 Hrs

MODULE 1. Networking Concept   (10 Hrs)

Concepts of computer network - need and advantages -concept of LANs &WANs - serial & parallel data transmission – networking components-wired & wireless - Transmission media- bounded and unbounded media - UTP cables, fiber optic, microwave & satellite link -NIC cards, Ethernet port ,switches, Modems –
Concept of IP addresses , subnet mask.
Infrastructure - Awareness on LAN, WAN Infrastructure and its components - 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

Module 2. Internet   (5 Hrs)

Introduction to Internet, WWW and Web browsers, searching content etc - Cookies, caches, history etc.
Internet Basics - URL, Domain - concept of DHCP, DNS, router & gateway. Internet Access methods (DSL, Cable, wireless[WiFi], FTTH) - WWW - Web protocols (HTTP, HTTPS, FTP) – Internet configuration – Linux & Windows - Concept of firewall, Proxy server, Web server.
Introduction to Hyper Text Mark-up Language - Concepts of HTML, The structure of a HTML page.

Module 3. Email & Search Engines   (8 Hrs)
Browsers - different browsers, managing web browser , Options and settings , plugins - Search engines - search techniques (site, type, date, range, domain, country etc) - downloading and saving web documents - download managers - Instant messengers - ftp client software(Cute FTP, FileZilla etc)
Email - email id creation,compose,attach,send,inbox,spam,trash,CC,BCC,addressbook,reply& forward ,
searching - Blog creation.
Introduction to Web Forms (Familiarisation of Online Forms like PSC application, E-grantz, Keralapsc.org,mvd.org)

Module 4.WEB Utilities& PC Skills   (12 Hrs)

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
Font Installation in windows and Linux (including Malayalam) - Concept of Unicode.
File formats (html,Jpeg,GIF,tiff,bmp,avi,mp3,mp4,3gp,doc,zip,tar,swf,flv etc.) - File conversion utilities
 (eg:-DOC to PDF, HTML to DOC, RTF to PDF etc) - Web Documents – PDF document creation ,Google Docs.
Video conferencing - WEB Cam & Microphone, Concept of Web Casting - Anti virus software - DVD Burning using software like Nero , CD/DVD creator in Linux etc.
Concept of Cyber security (phishing, id theft, spoofing, Denial of Service etc) and Cyber laws. Image Editing - image resize, crop, rotate etc using paint/GIMP/Photoshop or any other software.
Mobile Technology- Mobile Operating Systems-Android,ios,windows-Different versions, Mobile Apps
Online Store- Google Play store, Apple play store, Microsoft store etc
Onlie Products- calendar, Docs, Drawings, Drive, Forms, Groups, Sheets, Slides

Module 5. Database Concepts   (5Hrs)

Introduction to database, tables, data types, fields, rows, columns ,tuples, attributes– Introduction to mysql - creation of a database and tables - adding , editing, deleting and saving data , displaying data.
Project Management tools

References :
https://www.tutorialspoint.com/internet_technologies/index.htm
https://www.webopedia.com/quick_ref/network-fundamentals-study-guide.html
https://www.w3schools.in/sql/database-concepts/

* * * * * * *

[Scheme 2020]

DCA104 Lab Practice-1
(Windows, Linux, PC Hardware)

Duration :40 Hrs

Module 1 – Windows   **(10 Hrs)**

Familiarization of windows Desktop, taskbar, icons, mouse operations, utilities - paint , notepad etc. Shell commands - DATE, TIME, DIR, COPY, REN, DEL, MD, CD, RD, TYPE etc.

Files and Folder manipulation - create, copy, move, rename, delete

windows explorer - control panel - recycle bin - Sharing of folder and printer – Managing user accounts - Desktop management - Searching files.

Module 2 – Linux   **(15 Hrs)**

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.

Module 3 – PC Hardware   **(10 Hrs)**
Installation and configuration of peripherals such as printers, scanners, projectors etc.

Identification of Hardware components - motherboard, processor, memory(DDR3,DDR4), HDD, DVD writer, SMPS - NIC– UPS – online & offline.

Identification of connecters and slots in motherboard. Ports - serial, parallel, USB, PS2, audio ports.
Identifying configuration of a system (Through CMOS, Windows or any other software).

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

Module 4 – OS Installation   **(5 Hrs)**

Familiarizing Hard disk Partitioning – formatting - CMOS setup – Display and audio configuration. OS installation (windows & Linux)

Configuring Windows - Service pack installation - OS updation - software installation – network configuration.

Configuring Linux system – creating user accounts – configuring networking.

* * * * * * *

[Scheme 2020]

DCA105   Lab Practice-2
(Office Automation Packages, Data Entry)

Duration :40 Hrs.

Module 1: Word Processing (Word/ Writer)   (10Hrs)
Word processing packages – features – Menu – Tool bar – window parts , creating a document, saving, editing – formatting text – selection, copying, Moving, Deleting, Inserting , Undo, Redo, News paper column – Formatting paragraph – Margins and gutters, applying styles, Find & Replace, headers, footers, line spacing, page layout, page numbering, inserting section break – spell check, Tables – creation,merging,splitting rows and columns, formatting – Converting doc file to pdf format – Manipulating downloaded web documents using word processor- mailmerge– printing a document.
Practical/hands on sessions - Drafting/Noting using computer - Format documents

Module 2 : Spreadsheet (Excel / Calc)   (8Hrs)
Electronic spread sheet, features, Menus, Cells, Rows, Columns, Saving worksheet, Workbook – selecting cells, entering, copying formula, Autosum, functions, Rearranging worksheet – moving, copying, deleting, filtering data , sorting – Formatting Cells & cell content, find & replace, spell check, insert / delete row, column, freezing , splitting, Hide / Unhide, cell protection – drawing graph, Title, legends, saving, if command, moving and copying between sheets- formula, functions (sum, average, if, count, max,min, sin, sumif, hyperlink) and macros – entering formula – cell reference — working with range names . Transferring spreadsheet information to a word document.Printing worksheet-setting Print area.
Create a spreadsheet with data summarization and chart.

Module 3 : Presentation (Power Point/ Impress)   (4Hrs)

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- enhance a presentation – color, style, color schemes, add header and footer, add clipart picture , graphic objects, other objects, align objects – set transition , animate objects on a slide , add sound and movies, adding links to a slide. Printing slides.

Module 4 : Open source DTP software   (10 Hrs)
Working with documents – new document – 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 5 : Introduction to Database (Access/ Base)   (2 Hrs)
Creation of a database- adding , editing, deleting and saving data , displaying records.

Module 6 : Malayalam computing & Data Entry   (6Hrs)
Practical/Hands on sessions - Transcription and typing of dictated passage in English and Malayalam
Drafting/Noting using computer

Installation of Malayalam fonts like rachana, meera, kartika etc.- enabling Malayalamin windows and linux. – get phonetic keyboard using varamozhi in Windows and using swanalekhain linux
English & Malayalam data entry practice

References:
   1. http://www.free-training-tutorial.com/
   2   http://tools.malayalam.kerala.gov.in/

* * * * * * *

[Scheme 2020]

DCA105   Lab Practice-3

(Network, PC Skills, Internet)

Duration :40 Hrs

Module 1. Networking Concepts **(6Hrs)**

Familirisation of Network Components- cable, connector, switches, hub, access point, NIC Installation of network driver demo.

Connecting a system to a network -Assignment of IP address and subnet mask, Gateway in Windows & Linux.

Usage of trouble shooting commands (ping, ipconfig, ifconfig, traceroute, mii-tool) - File & Printer sharing

Module 2. Internet **(6 Hrs)**

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

Demonstration of Proxy server and firewall configuration.

Demonstration of Webserver (Apache/IIS) installation & configuration.

Module 3. E-mail & Search Engines **(10Hrs)**

Browser settings - Plug-in installation -Searching - Google (Filetype, image, site, date, country, domain, range etc)

E-mail- email id creation, compose, attach, send, inbox, spam, trash, CC, BCC, address book, reply, forward & searching.- Blog creation.

Familiarization of sites like www.IRCTC.com, www.Keralapsc.org, www.mvd.org,

http://civilsupplieskerala.gov.in,http://www.ceo.kerala.gov.in/eregistration.html,

http://www.cyberkeralam.in:8888/berker/ etc.

Downloading and saving web documents - download managers - Instant messengers – ftp client software(Cute FTP, FileZilla etc)

Module 4. Tally.ERP9 based Accounting **(10Hrs)**

Accounting basics - Familiarisation of tally menus- configuring tally – Ledger creation/editing – Voucher Entry – corrections –Voucher types – report generation - Printing - Bank reconciliation.

Module 5. WEB Utilities & PC Skills **(8Hrs)**

Font Installation in windows and Linux (including Malayalam) - Enabling Unicode in Linux & Windows.

File formats (html,Jpeg,GIF,tiff,bmp,avi,mp3,mp4,3gp,doc,zip,tar,swf,flv etc.) File conversion utilities(eg:- DOC to PDF, HTML to DOC, RTF to PDF etc)

Web Documents – PDF document creation ,Google Docs. Video conferencing-WEB Cam & Microphone.

Anti virus installation.

DVD Burning using software like Nero , CD/DVD creator in Linux etc.

Image Editing-image resize, crop, rotate etc using paint/GIMP/Photoshop or any other software.Image Scanning.

Network Printing -   Familiarization of online products

* * * * * * *

[Scheme 2020] **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 ¼ pages per question

Section C :Descriptive type questions with answer size up to ½ 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:

1. Each part should cover questions from each module in the syllabus.

2. The level of difficulty shall be as follows
    i)   Easy Questions   : 30% -40%
    ii) Intermediate level to difficult :   30% -40%
    iii) Difficult questions   :   20% -30%

3. The question paper setters must prepare and submit the question papers as per the following guidelines.

    a. Question paper must be designed and prepared to fit in an A4 size paper with one inch margin on all four sides.
    b. 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.
    c. 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.
    d. 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.
    e. Specify marks for each question/part clearly.
    f. Clearly specify the number of questions to be answered for each Part.
    g. Confirm that no questions in part B is repeated in Part C also.
    h. Avoid repeating questions in Part C from the immediate previous examination.
    i. 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.
    j. Submit Question paper in Laser print out form only.   Hand written and printed in poor quality printers is not acceptable.

****

[Scheme 2020]   **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 25	DCA102 25	DCA103 25	DCA104 25	DCA105 25	DCA106 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   Sd/-
January 01, 2020   Director