DIPLOMA IN COMPUTER APPLICATION (DCA)
[approved vide GO(Ms)No.37/ 2012/ P&AR Ddated.16/ 7/ 2012]

SYLLABUS
(Duration – 6 Months)

CENTRE FOR CONTINUING EDUCATION KERALA
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DIPLOMA IN COMPUTER APPLICATION (DCA)

I. INTRODUCTION

Computer knowledge is essential in all types of jobs. It will give added weightage to the job seekers. This curriculum is framed so as to impart the theoretical and practical knowledge in computer application such as windows, Linux, word processing, spreadsheets, Presentation, Internet, Open Office, DBMS, Malayalam computing, etc.

The course Diploma in Computer Applications (DCA) of CCEK is approved by Government of Kerala vide GO(Ms)No.37/2012/P&ARD dated 16/7/2012 of the Personnel and Administrative Reforms Department, Government of Kerala as a qualification for appointments through Kerala PSC. Considering the wide spread demand for the course, CCEK proposes to offer the DCA course across the state by establishing new sub-centers among the Arts & Science Colleges.

II. ELIGIBILITY FOR ADMISSION

SSLC

III. DURATION OF THE COURSE

SIX months

IV. MEDIUM OF INSTRUCTION

The medium of instruction in all the theory and practical subjects shall be English & Malayalam.

V. COURSE FEE

The course fee is Rs. 6000/-

The fee can be collected in three equal installments at the discretion of the sub-centre.

VI. EXAMINATION FEE

Fee for registering regular examination - Rs.300/-

Fee for supplementary examination - Rs. 100/- per paper

Examination fee from the students will be collected by the sub-centre concerned and forwarded to the Director, CCEK by DD payable at Thiruvananthapuram in lumpsum with the details of the candidates registered for the examination.

VII. EXAMINATION

There will be an examination for theory and practical subjects as per the notification of the Director, C.C.E.K.
VIII. RULES AND REGULATIONS FOR EXAMINATION AND PROMOTION

1) Duration of the course is six months.

2) The minimum qualification prescribed for admission is SSLC.

3) The examinations will be conducted by C.C.E.K.

4) Minimum attendance required for a candidate to register for the examination is 70%.

5) Shortage of attendance up to 15% can be condoned in deserving cases on payment of prescribed condensation fee of Rs.200/- on the recommendation of the course coordinator of the sub-centre. Condonation fee from the students will be collected by the sub-centre concerned and forwarded to the Director, CCEK by DD payable at Thiruvananthapuram in lumpsum with the details of the candidates registered for the examination.

6) No candidate will be allowed to register for examination in piecemeal. If in any case this happens, registration shall automatically be cancelled at any stage of the process of the examination. The Board of Examination has the discretionary power to relax the condition in exceptional cases, if found necessary.

7) Each candidate is entitled for three chances to pass the examination, including the regular with in a period of 2 Years after the registration for the first examination.

8) A minimum of 35% marks in theory and practical is required to pass in each subject.

9) Supplementary examination fee of Rs. 100/- per paper will be charged subject to a maximum amount of Rs. 500/-

10) There will be 5 classifications of passed candidates in the following grading system.

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 to 50%</td>
<td>C</td>
</tr>
<tr>
<td>51 to 65%</td>
<td>B</td>
</tr>
<tr>
<td>66 to 80%</td>
<td>B+</td>
</tr>
<tr>
<td>81 to 90%</td>
<td>A</td>
</tr>
<tr>
<td>91 to 100%</td>
<td>A+</td>
</tr>
</tbody>
</table>

11) The total marks shall be considered to classify the successful candidates.

12) Revaluation for theory papers is done on application addressed to the Director, C.C.E.K. within 15 days of the publication of the results, along with revaluation fee of Rs. 100/- per paper. In case CCEK decides to conduct the theory examination on-line, there will be no revaluation.

13) There will be no revaluation for practical.

14) Any other details not specifically mentioned herein will be decided by the Director, C.C.E.K. and decision will be final.
IX. SYLLABUS

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subject Name</th>
<th>Theory Hours</th>
<th>Practical Hours</th>
<th>Internal Marks</th>
<th>End Exam Total Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC 01</td>
<td>Informatics</td>
<td>10</td>
<td>-</td>
<td>50</td>
<td>100 - 150</td>
</tr>
<tr>
<td>DC 02</td>
<td>MS Office and Internet</td>
<td>10</td>
<td>90</td>
<td>50</td>
<td>50 - 50</td>
</tr>
<tr>
<td>DC 03</td>
<td>Linux and Open Office</td>
<td>4</td>
<td>30</td>
<td>50</td>
<td>50 - 50</td>
</tr>
<tr>
<td>DC 04</td>
<td>PC Techniques</td>
<td>4</td>
<td>20</td>
<td>50</td>
<td>100 - 150</td>
</tr>
<tr>
<td>DC 05</td>
<td>Malayalam Computing</td>
<td>2</td>
<td>10</td>
<td>50</td>
<td>50 - 50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>30</strong></td>
<td><strong>150</strong></td>
<td><strong>250</strong></td>
<td><strong>350 - 150</strong></td>
</tr>
</tbody>
</table>

1. DC 01- INFORMATICS

**Introduction To Information Technology**
- Characteristics of Computers, Stored Program Concept
- History of Computers
- Evolution of Computer - Generations
- Computer classifications-Micro, Mini, Mainframe and Super Computers
- Microcomputers - Desktop PCs, Laptops, Palmtops and PDAs

**Computer Organization**
- CPU, Memory, I/ O Devices- Block Diagram of a computer
- System components - Motherboards, Chip sets, Buses and Expansion Slots
- I/ O Ports-Serial Port (RS-232 ), Parallel ports, USB, PS/ 2
- Microprocessors - Brief introduction to the Intel Family, Different Models of Intel Pentium IV and AMD Athlon/ Duron processors
  (characteristics - Number of bits, Speed, Memory Addressing, other features like Hyper Threading etc)

**Memory**
- Characteristics of Primary Memory and Secondary Memory
- Classification of Primary Memory
- ROM - EPROM, EEPROM
RAM - SRAM, DRAM, SDRAM, DDRAM, RDRAM
Cache Memory - L1, L2 and L3 Cache

Secondary Memory
Sequential and Direct Access Storage Characteristics
Magnetic Tapes, Magnetic Disks-
Floppy Disks, Hard disks
Optical Storage - CDROMs Different types of CDROMs - CDR, CDR/W
CD-Drives - Speed of CD- Drives, CD Writers, DVDs - DVD - R/ W, Blu-Ray Disk
Advanced Removable Storage Devices - Pen Drives, Zip Drives, Super disks

Input Devices
Keyboard - Different types of keyboards
Graphical Input - Mouse - Optical Mouse, Trackball, Trackpad, Trackpoint, Joystick, Scanners, Optical Mark Readers, Barcode reader, Smart Card Readers
Touch Screens, ATM, Web Cameras
Voice Input - Microphones

Output Devices
Computer Output - Soft Copy and Hard Copy
Monitor - CRT, LCD, TFT displays (Dimensions, Resolution, and comparison - overview only)
LCD Projectors
Printers - Impact and Non Impact printers
Dot matrix Printers, Thermal Printers, Inkjet and Laser Printers, Plotters, Computer Output
Microfilm
Audio Output - Speaker

Computer Software
Software Classification - System Software and Application Software
Operating Systems - Functions of as - Types of OS - Single User, Multi-User, Multitasking, Real Time OS
Language Translators - Compilers and Interpreters
Programming Languages and Classification - Machine Language, Assembly Language, High Level Language and 4GLs (Comparative study of these languages)
Computer Viruses, Software Piracy, Free Software Philosophy

Information Technology
IT in communication, Business, Governance, Medicine, Office Automation, and Health Care, Education, Science, Entertainment, Engineering Manufacturing, IT
Policy in the State
On-line trading and Net-Banking

Ethical and Social Issues
Understanding ethical and social issues related to systems
A Model for Thinking About Ethical, Social, and Political Issues
Five Moral Dimensions of the Information Age
Key Technology Trends that Raise Ethical Issues
Ethics In An Information Society-Basic Concepts: Responsibility, Accountability, and Liability, Ethical Analysis-Candidate Ethical Principles
Professional Codes of Conduct
Some Real-World Ethical Dilemmas
The Moral Dimensions Of Information Systems-
Information Rights: Privacy and Freedom in the Internet Age,
Property Rights: Intellectual Property,
Accountability, Liability, and Control,
System Quality: Data Quality and System Errors
Quality of Life: Equity, Access, and Boundaries

Text Books:
Alexis Leon & Mathews Leon, Computers Today, Leon Viks Pub
Curtin, Foley, Sen. & Motrin , Tata Me Graw Hill Pub
IT Tools and Applications - Mc Millan

References:
Peter Dyson, The PC User's essential accessible Pocket Dictionary, BPB
Ron White, How Computers Work (with CD) BPB New Delhi
Alexis & Mathew Leon, Fundamentals of Information Technology, Leon Vikas Pub

2. DC 02 - MS OFFICE AND INTERNET
Office Automation Basics
Concept of office
Nature of work in office
Meaning of office automation
Needs & future trends of Office Automation
Office system requirements
Document preparation
Document storage & retrieval
Integrated office systems

**Disk Operating System:**
Simple DOS Commands
Simple File Operations
Directory Related Commands.

**Windows XP/2000/7**
Introduction to Windows
Desktop, Taskbar, Start Menu, My Computer, Windows Explorer, Recycle Bin
Accessories- Calculator, Notepad, paint, WordPad.

**Microsoft Word**
Introduction to MS Office & MS Word
Introduction to MS Office Package
MS Word
Text Formatting Features
Paragraph, Change Case, Font, Tabs, Drop Cap, Bullets and Numbering,
Advanced Formatting Features
Boarders and Shading, Auto shape, Caption, Columns, Text Box, Footnote,
Tables and Drawing Features
Insert Table, Draw Table, Formula, Sort, Forms
Graphics - Word Art and Clip Art,
Tools - Mail Merge, Spelling and Grammar, Thesaurus, Autocorrect.

**MS Excel**
Worksheets, Cell, Cell Range Operations, Fill Series .Protecting
Worksheets
Functions- sum, average, if. Financial and statistical functions,
Mathematical functions.
Database Operations Sort, Filter - Auto filter and Advanced filter,
Subtotals, Table, Validation
Charts - Column, Pie, XY, Line, Scatter

**MS Powerpoint- Introduction**
Slide Sorter
Slide Background
Slide Transition
Slide show
Introduction to database system concepts

Database
Characteristics of Data in Database
DBMS-Advantage of DBMS
Different type of Database Systems
Introduction to Relational DBMS
RDBMS Terminology
Databases-Tables - Relations- Domains- Attributes -Tuples
Primary key- Foreign key

MS-Access
Introduction
Blank Database, Database Wizard
Database Window, Design View, Data Sheet View
Creating Tables in Design View
Field Properties , Primary key, Indexes
Record Manipulations’ - Adding, Editing,
Deleting
Sorting and Filtering
Creating Query in Design View,
Query Wizard, Deleting Queries
Creating Form with Wizard
Creating Reports Using Wizard
Import and Export

INTERNET & EMAIL
Introduction to Internet Technology, Introduction to Internet Explorer, Concept of Websites and WebPages, Use my connection for dialing, Log on to Internet, Browsing/ Surfing with the help of Internet- Explorer(File, Edit, View, Go Favorites, Toolbar), Closing Internet Explorer, Learning to use E-mailing, Read/ Send mails through send & receive options, Working with Boxes (Inbox, Outbox, Sent box), Composing/ Attaching a file, Using the Address book, Import/ Export-message/ address, Internet options, Working online, Open free E-mail IDs. Using search engine to find sites, Closing your Dial-up networking
connection.

**HTML**

Basic HTML tags, advanced HTML tags

**Textbooks:**

- Microsoft Office XP Plain & Simple - Brown Resource - PHI
- Microsoft Office XP Fast & Easy - Koers PHI
- Faster Smarter Microsoft Office XP - Murray - PHI

**DC03 - LINUX AND OPEN OFFICE**

**Linux**

History and features of Linux, Linux Structure, File System of Linux, Hardware requirements of Linux, Various flavors of Linux, Linux Kernel, Login and Logout from Linux system, Linux command -Is, cat, cd, ,chmod, clear, cp., rmdir, wc, who, grep, write, mv, find, mkdir, more, date, vi Editor.

**Open office Writer**

Entering and Editing Text in a Writer Document, Formatting a Writer Document, Checking your spelling automatically using the AutoCorrect, Manually running the Spell checker, Finding Synonyms with the Thesaurus, Create Table, Table Formatting, Summing Table Rows and Columns, Finding items in a Document, Create and modify Headers and Footers, Create and modify Page numbers, Adding Graphics, Formatting a Picture, Resize a picture, Wrapping a picture around text, Adding borders and colours, Creating a Form Letters, Creating a Data Source, Reviewing the Mail Merge document, Addressing Mailing Labels

**OpenOffice.org**

System Requirements, Start of the programs, File management, Create a new Document, Save a document, Open a document, Close an active document, Send document by email, Export to PDF, Export to HTML, Importing from other documents, Information management, Text selection, Copy the information, Move information, Find and replace text, Browse through the document, Styles and templates, Type of styles, Create new styles, Modifying styles, Page breaks, Create and manage Templates, Print, Page margins, Size of the page, Page background, Headers, Footnotes, Print Preview.

**OpenOffice.org Writer**

Writer interface, Text input, Characters format, Font effects, Position, Background color, Paragraph formats, Paragraph, Alignment, Text flow, Bullets
and Numbering, Applying Bullets and Numbering, Change the type of numbering, Applying numbering, Styles of numbering, Outline numbering, Restart numbering, Stop numbering and Indent, Tabs and tables, Spacing, Tables, Delete column and lines, Column width, Alignment, Merge cells, Insert lines and columns, Borders, Calculate in a table, Number formats, Sort, table charts, Text boxes and images, Insert images, Insert external images, Size, Anchor, Position, Adjustment, Font work, Index, Index with default styles, Index with user styles, Index updates, Index links.

**OpenOffice.org Calc**
Calc features, Calc Interface, Data types, Create formulas, Lines and columns, Format, Numbers, Font, Font effects, Alignment, Border, Background, Height and weight cells, Merge/Split Cells, Functions, Statistical functions, Time and date statistical, Text function, Math function, Information function, Logical function, Chart, Data Types, XY axis, Object properties, Identifying cells, Absolute ranges, Assign range and names, Automatic range, Print ranges, Data ranges, Sheets, Change names, Add sheets, reference sheets, delete sheets, select multiple sheets, Database ranges, Auto filter, Sort, Subtotals, Consolidate, Workgroup, Notes, Versions, Protect cells, Validity.

**OpenOffice.org Impress**
Impress characteristics, Start Impress, Presentation Wizard, Drawing, Zoom, Lines, Rectangle, Freeform line filled, Polygon, Convert objects, Curves, Select objects, Copy objects, Delete objects, Flip objects, Arrange objects, Group objects, Export drawing, Area Fills, Color, Gradient, Hatching, Bitmaps, Transfer settings, Images, Insert images, Filters, Graphics mode, Color, Transparency, Crop, Gallery, Glue points, Size and position, Rotate, Alignment, Text, Text to polygon, Text boxes, Slides, Insert, Clone, Rename, Delete slides, Format, Character, Paragraph, Textbox format, Slide effects, Slide transitions, Sounds, Automatic transition, Manual transition, Hyperlinks, From text, From images, Bitmaps.

**Linux OS Installation**
Driver Installation
Package Installation
User Creation

**Text Books:**
Linux In Easy Steps - Mike Mc Grath - DreamTech
Comdex Linux and Open Office Course Kit - Vikas Gupta - DreamTech
4. DC04 - PC TECHNIQUES

Parts of a PC
- Main Unit/ Cabinet, Power supply
- Outside main unit - Front panel, switches and indicators, back panel, ports
- Inside system unit - SMPS- signals and functions, connectors, POST, BIOS, Bootstrap
- Motherboard- Processor, version, technology and speed
- Identify ROM and BIOS Chips
- Identifying Computer Expansion Slots
- Identifying RAM and RAM Sockets
- Input, output devices and drivers
- Storage devices
- Video Card Identification
- BIOS/ROM
- Floppy Disk Drive
- Hard Drive Identification
- CD-ROM I DVD drive Identification

Windows OS Installation
- Driver Installation
- Changing File Views in Windows
- Control Panel
- User creation and rights
- Hard Drive Preparation Using FDISK and FORMAT, DM utility
- Troubleshooting
- Install a Driver
- Create a startup Disk

Windows XP/7 Operating System
- Installation Demonstration of Windows XP/ 7
- Using Simple File Sharing to Share Files
- Internet Connection and Firewall
Using Windows XP/ 7 Start Menu and Windows Explorer

Application Software Installation
Ms Office, Tally, Data entry S/ W, DTP S/ W Etc

Transferring Computer Software
Floppy disks
USB flash drives
CD/ DVD – Burning a CD/ DVD

Maintaining Computer Software
Antivirus Installation
Cookies-cleaning out cookies
Cleaning out temporary internet files, Recycle bin
System tools – Disk Cleanup, Disk Defragmentation
Back up of user data
Updating operating system and web browser software

Computer Networks
Definition of Computer network-Classification-LAN, MAN, WAN and Internetwork, LAN Topologies
Protocols-Definition –TCP/IP, UDP, Application level protocols
HTTP, FTP, SMTP, NNTP, SNMP, DHCP, DNS (ideas only)
Connectivity Devices Repeater, Hub, Switch, Bridge, Router, Gateway, Firewall.
Modems-Dialup, Cable and Digital Modems.

5. DC 05 - MALAYALAM COMPUTING

Introduction-
Malayalam through computers, Unicode, IT and Malayalam, Language Computing, Importance of language computing, Free software and language computing, Malayalam and technology, Malayalam digital technology.
Enabling Malayalam in Linux and Windows. Downloading and installing Malayalam fonts.
Malayalam using transliteration.
Structure of Malayalam Keyboard, Overview of Malayalam characters, Typing on the Malayalam keyboard.
Malayalam word processing.