

Course curriculum

Title of Component and Identification Code	Mandatory/ Optional	Estimated Size (Learning hours)
Computer Fundamentals	M	80
System Maintenance & Information Security	M	80
Internet Technology & Web Design	M	80
Multimedia	M	80
Concepts of DBMS	M	20
Soft Skills	M	30
Project	M	30

Module 1: Computer Fundamental

Duration: Theory: 25 hrs + Practical: 50 hrs. + Tutorial: 5 hrs.

Syllabus Outline

	Theory	Tutorials	Practical
1. Introduction to computer	2	1	2
2. Introduction to Windows	4	-	8
3. Basic DOS Commands	2	-	4
4. Elements of Word Processing	5	2	10
5. Spreadsheets	4	2	10
6. Making small presentation	4	-	10
7. Introduction to Digital India Schemes	4	-	6
Grand Total	25	5	50

Detailed Syllabus**1. Introduction to computer**

1.1 What is computer?

1. Characteristics of Computers
2. Basic Applications of Computer

1.2 Components of Computer System

1. Central Processing Unit(CPU)
2. VDU, Keyboard and Mouse
3. Other input/output Devices
4. Computer Memory
5. Concepts of Hardware and Software

1.3 Classifications of computers

1.4 Representation of data/Information concepts of data processing

1. Definition of Information and data
2. Basic data types
3. Storage of data/Information as files

Tutorial: The student is allowed to enumerate in what ways he can use the computer for his own purpose/business.

Practical: The student needs to be exposed/shown various components and supposed how to switch on a computer. This applies to the next few chapters also.

2. Introduction to Windows

2.1 What is an operating system and basics of Windows

2.2 The User Interface

1. Mouse and Moving Icons on the screen
2. The My Computer Icon
3. The Recycle Bin
4. Status Bar, Start and Menu & Menu-selection
5. Running an Application
6. Windows Explorer Viewing of File, Folders and Directories
7. Creating and Renaming of files and folders
8. Opening and closing of different Windows

2.3

WindowsSetting

1. Control Panels
2. Wall paper and Screen Savers
3. Setting the date and Sound
4. Concept of menu Using Help

2.4 Advanced Windows

1. Using right Button of the Mouse
2. Creating Short cuts
3. Basics of Window Setup
4. Notepad

5. Window Accessories

Practical: More stress is on practical. Allow the student freely the computer experience each command rather than explaining in a theory class.

3. Basic DOS commands

3.1 Comparison of DOS and Windows

3.2 Switching Between DOS and Windows

3.3 Basic DOS Commands

1. File/Directory Manipulations
2. Copying of files and Disks
3. Delete/Undelete
4. Formatting a floppy

4. Elements of Word Processing

4.1 Word Processing Basic

1. An Introduction to Word Processing
2. Opening Word Processing Package
3. The Menu Bar
4. Using the Help
5. Using the Icons below menu bar

4.2 Opening Documents and Closing documents

1. Opening Documents
2. Save and Save AS
3. Page Setup
4. Printing of Documents
5. Display/Hiding of Paragraph Marks and Inter

Word Space

4.3 Moving Around in a Document

1. Scrolling the Document
2. Scrolling by line/paragraph
3. Fast Scrolling and Moving Pages

4.4 Using a Document/Help Wizard

4.5 Text Creation and Manipulation

1. Paragraph and Tab Setting
2. Text Selection
3. Cut, copy and paste
4. Font and Size selection
5. Bold ,Italic and Underline
6. Alignment of Text: Center, Left, right and Justify

4.6 Formatting the Text

1. Changing font, Size and Color
2. Paragraph indenting
3. Bullets and Numbering
4. Use of Tab and Tab setting
5. Changing case

4.7 Handling Multiple Documents

1. Opening and closing of Multiple documents
2. Cut, Copy and Paste across the documents
3. Saving of Clip boards

a. Table Manipulation

1. Concept of table: Rows Columns and Cells
2. Draw Table
3. Changing cell Width and Height
4. Alignment of Text in Cell
5. Copying of cell
6. Delete/insertion of row and columns
7. Borders for Table

b. Printing

1. Printing
2. Print Preview
3. Print a selected page
4. Spread Sheet

c. Elements of Electronics Spread Sheet

1. Application/usage of Electronic Spread Sheet
2. Opening of Spread Sheet
3. The menu bar
4. Creation of cells and addressing of cells
5. Cell inputting

d. Manipulation of cells

1. Enter texts numbers and dates
2. Creation of tables
3. Cell Height and Widths
4. Copying of cells

e. Providing Formulas

1. Using basic functions / formalism a cell
2. Sum function
3. Average
4. Percentage
5. Other basic functions

f. Spread sheets for Small accountings

1. Maintaining invoices/budgets
2. Totaling of various transactions
3. Maintaining daily and monthly sales reports
- 4.. Making Small Presentations

g. Basics

1. Difference between presentation and document
2. Using Power Point
3. Opening a Power Point Presentation
4. Using Wizard for creating a presentation

h. Creation of Presentation

1. Title
2. Text Creation
3. Fonts and Sizes
4. Bullets and indenting
5. Moving to Next Slide

i. Preparation of Slides

1. Selection of type of Slides
2. Importing text from word documents
3. Moving to next Slide
4. The Slide manager

j. Providing aesthetics

1. Slide Designs
2. Background and Text colors
3. Making your own slide format
4. Footnotes and slide numbering

k. Slide Manipulation and Slide Show

l. Presentation of the Slides

- 1 Using the Slide Show
- 2 Printing the Slides and Handouts
- 3 Slide sorter
- 4 Title sorter

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Introduction to Digital India Schemes

a. Digital Payment

- i. Different Mode of digital payment
 1. Unified Payment Interface
 2. Aadhaar Enable Payment System
 3. Unstructured Supplementary Service Data
 4. E-Wallet
 5. POS
- ii. BHIM (Bharat Interface for Money)

b. Digital Locker

- i. Creating Digital Locker
- ii. Uploading document in Digital Locker
- iii. Sharing Document in Digital Locker

Text Books:

1. C.S. French "Data Processing and Information Technology", BPB Publications 1998
2. P.K Sinha `Computer Fundamentals`, BPB Publications, 1992
3. Guy Hart-Davis "The ABCs of Microsoft Office 97 Professional edition", BPB Publications, 1998
4. Karl Schwartz, "Microsoft Windows 98 Training Guide", 1998

Assignments: Student may be asked to do assignments for preparing various tables with MSWord, small balance sheet with MS Excel, and slide presentations.

II. System Maintenance & Information Security

1. **Computer hardware basics:** CPU's, Multiple Cores, Cache, FSB, Laptop CPU's, Desktop RAM, Laptop RAM, PATA & SATA configuration, floppy disk drives, optical drives. Troubleshooting computers: Identifying power problems, POST error codes, boot failures and peripheral failures.
[8 hours]
2. **Computer peripheral devices:** Installation and Trouble shooting of peripherals like Printers, Scanners. Modems, Monitors, USB, Bluetooth and Wireless Devices.
[7 hours]
3. **Trouble shooting OS& Application Software:** Advanced Boot Options, Stop Errors (BSOD), Safe Mode, CHKDSK, FIXBOOT, FIXMBR, Repair Install, MSCONFIG, System Restore, Performance Issues, Application Problems, the Registry, Malware (Viruses)
[7 hours]
4. **Information Technology and Society:** Indian IT Act, Intellectual Property Rights – issues. Cyber laws.
[8 hours]
5. **Trends in IECT:** Cloud computing, Digital signature, e-Governance
[2 hours]
6. **Information Security basics:** Introduction to Information Security, Goals of Information Security, Types of attacks , Preventive Measures
[9 hours]
7. **Workstation Security :** Windows Security , Choosing Strong Passwords, Virus, Worms and Malware, Spyware and Adware, Patches and Updates, Network Attacks, Firewalls, Intrusion Detection Systems
[9 hours]
8. **Internet Security :** Internet configurations, Internet protocols and security, application security WWW security – SHTTP, SMIME, PGP, SET, E-mail and IMsecurity, access control – physical and logical biometrics introduction, Internet security protocols
[10 hours]
9. **Email Security :** Email client configuration, Sending email in another persons address, Browser Security configuration, Email header of fake message, Email header of real message, Email viruses
[5 hours]
10. **Backup and Disaster Management :** Security policies and procedures, business continuity planning, disaster recovery planning, business impact analysis, risk assessment methodologies, risk classification, asset classification, information classification, resource recovery strategy, crisis management plan – incident management, logging and analysis, data backs and recovery
[5 hours]

11. **OS Installation and Securing:** Installation and configuration of the Windows and Linux operating system, implementing and managing the network infrastructure, disk and file system management. Operating system security.

[10 hours]

III. Internet Technology and Web Design

1. **Introduction to Internet :** Internet, growth of Internet, owners of the Internet, anatomy of Internet, ARPANET, and Internet history of the World Wide Web, basic Internet terminology, Net etiquette.

[5 hours]

2. **Internet Applications :** Commerce on the Internet, governance on the Internet, Impact of Internet on society – Crime on/through the Internet

[5 hours]

3. **Internet Technology :** TCP/IP – protocol, Internet connectivity, packet switching technology, Internet protocols: TCP/IP, Router, Internet addressing scheme:

Machine addressing (IP address), E-mail addresses, resources addresses connectivity types: level one, level two and level three connectivity, setting up a connection: hardware requirement, selection of a modem, software requirement, modem configuration, Internet accounts by ISP: telephone line options, protocol options, service options, telephone line options – dialup connections through the telephone system, dedicated connections through the telephone system, ISDN, protocol options – Shell, SLIP, PPP, service options – E-mail, WWW, Firewall etc.

[15 hours]

4. **Internet Network and Services on Internet (Definition and Functions):** Network definition, Common terminologies: LAN, WAN, node, host, workstation, bandwidth, interoperability, network administrator, network security, network components: servers, clients, communication media, types of network: peer to peer, clients server, addressing in Internet: DNS, domain name and their organization, understanding the Internet protocol address. Network topologies: Bust, star and ring, Ethernet, FDDI, ATM and Intranet.

E-mail, WWW, Telnet, FTP, IRC and search engine

[15 hours]

5. **Electronic Mail :** Email networks and servers, Email protocols –SMTP, POP3, IMAP4, MIME6, structure of an Email – Email address, Email header, body and attachments, Email clients: Netscape mail clients, Outlook Express, web based E-mail. Email encryption- address book, signature file.

[10 hours]

6. **Web Browsing and Current Trends on Internet:** Overview, SGML, web hosting, HTML. CGL, Documents Interchange Standards, components of web publishing, document management, web Page design consideration and principles, search and Meta Search Engines, WWW, browser, HTTP, publishing tools languages, Internet phone, Internet video, collaborative computing, e-commerce.

[10 hours]

7. HTML Programming Basics : HTML page structure, HTML text, HTML links, HTML document tables, HTML frames, HTML images, multimedia

[20 hours]

Module IV : Multimedia

Duration : Theory: 21 hrs + Practical: 51 hrs + Tutorial: 8 hrs

Syllabus Outline

Sl	Topic	Theory	Tutorials	Practical
1	Introduction to Multimedia	3		
2	Image Fundamentals and Fonts	6		1
3	Adobe Photoshop	6	4	30
4	Adobe InDesign	6	4	20
Grand Total		21	8	51

Detailed Syllabus

1. Introduction to Multimedia

[3 hours]

Basics of Multimedia, Components of Multimedia, Applications of Multimedia.

2. Image Fundamentals and Fonts

[7 hours]

Colour science, colour, colour models, colour palettes, dithering, 2D graphics, image compression and file formats.

Usage of text in multimedia, families and faces of fonts, outline fonts, bitmap fonts, international character sets and hypertext, digital fonts techniques.

3. Adobe Photoshop

[40 hours]

Introduction : Photoshop Interface, Raster graphics & Vector graphics, Operations on image

Manipulation of Image : The Marquee tool, the Lasso tool, Magic Wand tool, Inverting Selection, Layers, Brush tool, Eraser tool, Fill tool, Blur tool, Smudge tool, Sharpen tool, Dodge tool, Sponge tool, Darken tool.

Transformation & Retouching : Free transform, scaling, rotation, skew, perspective, wrap, distort, crop, image size, canvas size, clone stamp tool, healing brush tool, patch tool, red eye tool, history brush tool.

Colour Correction : Colour swatch, image modes, colour adjustments, colour selection.

Text : The Text tool, editing text, formatting, line & spacing, wrap text, text effects.

Effects : Blending modes, styles, filters, liquefy, vanishing point.

Drawing : The pen tool, drawing shapes, managing paths, converting path to selection.

4. Adobe InDesign

[30 hours]

Looking at the Work Area: Using the tools, Using palettes, Workspaces, Using context menus, Opening and closing documents, Changing the view, Selecting objects, Saving a document, Recovering a document after a failure, Undoing mistakes, Working with preferences and defaults.

Setting Up Pages: Setting up basic layout options, Using rulers, grids, and guides, Working with pages and spreads, Numbering pages, Changing Numbering and Section Options, Using master pages, Laying out pages with frames, Adjusting layout objects automatically, Working with layers.

Working with Text: About text frames, About threading text frames, Adding text to frames, Setting text frame properties, Editing text, Finding and changing text, Finding and changing fonts, Combining text and graphics, Creating path type.

Setting Type: Formatting characters, Formatting paragraphs, Working with tabs, Copying type attributes with the eyedropper tool, Working with the type composition engines, Controlling hyphenation and justification, Paragraph and character style sheets, Creating nested styles, OpenType, Glyphs palette.

Arranging and Combining Objects: Modifying objects using graphics frames, Grouping and ungrouping objects, Stacking objects, Aligning and distributing objects, Locking object position, Moving objects, Changing size, proportions, or orientation, Duplicating objects.

Applying Color: About spot and process color types, Working with swatches and unnamed colors, Applying color, Using the Swatches palette, Mixed inks, Mixed ink groups, Using swatch libraries, Using the Color palette, Applying colors by dragging and dropping, Creating gradients.

Creating Tables: Creating and editing tables, Importing spreadsheets from Word or Excel, Advanced table techniques, Placing graphics into tables.

Adobe Product Integration: Working with Acrobat, Photoshop, and Illustrator files, Using Photoshop layer masks instead of clipping paths, Using Photoshop's file browser, Copy and Paste from Illustrator to InDesign CS

PDF, Print, Preflight, and Package: PDF styles, Export options, PDF in detail, Other export formats (ID Interchange), Preflighting your files, Using the Package command, Printing and transparency, Flattener settings, The Separations palette.

Module V. Concepts of DBMS

1. **An Overview of Database Management System: Introduction to database, database system, database management system (DBMS), advantages of DBMS.**

[2 hours]

2. Data Base Operations: Data Manipulation-Concept: Database, Relational Database, integrity.

Operations: Creating, dropping, manipulating table structure. Manipulation of Data, SQL

[3 hours]

3. Design and Development of Applications using MS Access: Creation of Tables, Queries, GUI, Creation of Forms – text box, labels, list box, combo box, buttons and controls, Generation of Reports , Web browsing to a form , Web Page reports

[10 hours]

4. Design and Development of Applications using MySQL :Creation of Tables, Queries using MySQL.

[5 hours]

Module VI : Soft Skills

Duration : 30 hours

Performance Criteria(OUTCOME) No.	Contents	Hrs.
OUTCOME-1 Acquiring skills on verbal/ non-verbal communications	Importance of communication, Types of communication – Verbal/ Non-verbal, Barriers of Communication	6
OUTCOME-2: Acquiring skills on facing interviews	Interview dress code, controlling nerves, positive visualization, creating an impression, Selling yourself at the interview, Mock interview	6
OUTCOME-3: Acquiring skills on professional and social etiquettes	Importance of etiquette, Professional etiquette, Social etiquette Unit, Corporate Culture, Professional ethics, Mutual respect, Time management	9
OUTCOME-4: Acquiring skills on professional correspondence	Report writing, CV writing, Business lettersfor general/professional purposes	9

Module VII PROJECT

Duration: 30 hrs.

DOEACC curriculum has a project as an important component of Diploma in Computer Applicationcourse.

The Project is carried out by the student under guidance and support of faculty and management of the respective Institute / Organization. It is felt that such a project provides an opportunity to the student to apply his/ her knowledge and skills to real life problems (including oral and written communication

skills), and as such the project should be given utmost importance and priority both by the students as well as institution faculty / management in respect of its identification, planning and implementation. Objective of the Project The aim of the project is to give the students an additional hand-on experience in solving a real life problem by applying knowledge and skills gained on completion of theory papers in a course at a given Level. It provides an occasion for students to develop written and communication skills, Project also helps the students to realize the importance of resource and time management, ownership of task towards deliverables, innovation and efficiency in task management apart from presentation skills. It also provides a good opportunity for students to build, enhance and sustain high levels of professional conduct and performance and evolves a problem solver frame of mind in the students. It is also felt that taking up the project by a student prepares him for a job in industry and elsewhere.

DCA Project Submission

In DCA, there is one Project. No marks are assigned. Candidate is expected to carry out a Project successfully and submit a certificate in the prescribed format duly endorsed by the head of Accredited Institute where the Candidate has undergone training or the Organization where the Candidate has done the Project.

In case of direct candidates with graduation, the candidate may make a project under a Guide or under the supervision of a person with NIELIT A level with adequate experience of minimum five years experience (or) NIELIT B level / MCA (or) equivalent/higher qualification without any experience.

Prescribed format for DCA Project is given at Annexure - I

Annexure I

Proforma of the Project Completion Certificate

This is to certify that the Project work done at _____ <PROJECT TITLE> _____ BY Mr./Ms. _____ (NIELIT Registration No. _____) in partial fulfillment of CCA Examination has been found satisfactory. This report has not been submitted for any other examination and does not form part of any other course undergone by the candidate

It is further certifies that he/she has appeared in the DCA Examination.

Signature

Name:

Head of the Organization/Division:

Name of the Organization:

Address:

(or)

Name of the Guide/Supervisor:

Qualification

(Self attested copy of the qualification of the guide/Supervisor to be attached)