# Detailed Syllabus

## STUDY SCHEMES

Semester – I : Certificate in Computer Application

| Code | Subject |
|------|---------|
| CCA-101 | Fundamentals of Computers |
| CCA-102 | Operating System |
| CCA-103 | Office Automation Software |
| CCA-104 | Internet Technologies |
| CCA-105 | Computer Graphics using Photoshop |
| CCA-106 | DTP ( Desktop Publishing ) – PageMaker |

Semester – II : Diploma in Computer Application

| Code | Subject |
|------|---------|
| DCA -101 | Business Communication Skills |
| DCA-102 | Computer Communication & Networking |
| DCA-103 | Data Modeling & Relational Database Design |
| DCA-104 | Web Programming |
| DCA-105 | Visual Programming using Visual Basic |
| DCA-106 | Programming using C/ C++ |

## CCA101 – Fundamental of Computers

1.1.Introduction:
- Characteristics of Computers
- The Evolution of Computers
- The Computer Generations (First Generation(1942-1955)
- Second Generation (1955 – 1964)
- Third Generation (1964 – 1975)
- Fourth Generation (1975 – 1989)
- Fifth Generation (1989 – Present)

1.2. Basic Computer Organization :
- Input Unit
- Output Unit
- Storage Unit
- Arithmetic Logic Unit
- Control Unit
- Central Processing Unit
- The System Concept.

1.3. Number Systems:
- Non-Positional Number Systems
- Positional Number Systems
- Converting One number System to Another
- Binary to Octal Conversion
- Octal to Binary Conversion

Textbooks:
1. Information Technology Concept – Dr. Madhulika Jain, Shashank Jain, satish Jain – BPB    Publication

**CCA102 – Operating System**

Section 1. Windows

1.1 Basic DOS Commands :
- Comparison of DOS and Windows :
- Switching between DOS and Windows.
- Basic DOS Commands :
- File/Directory Manipulations.
- Copying of Files and Disks.
- Delete/Undelete

1.2 What is an Operating System and basics of Windows ?

1.3  The User Interface :
- Using Mouse and Moving Icons on the Screen.
- The My Computer Icon.
- The Recycle Bin.
- Status Bar, Start and Menu & Menu-selection.
- Running an Application.
- Windows Explorer Viewing of Files, Folders and Directories.
- Creating and Renaming of Files and Folders.
- Opening and Closing of different Windows.

1.4  Windows Setting :
- Control Panels.
- Wall Paper and Screen Savers.
- Setting the Data and Sound.
- Concept of menu Using Help.

1.5 Advanced Windows :
- Using right Button of the Mouse.
- Creating Short Cuts.
- Basics of Window Setup.
- Notepad.
- Window Accessories.

Section 2. Linux

2.1. Introduction
- Getting Started
- Setup Agent
- Introductory Terms
- Logging In
- Graphical Interface
- Opening a Shell Prompt
- Creating a User Account
- Documentation and Help
- Logging Out
- Shutting Down your Computer

2.2.  Using the Graphical Desktop
- Using Nautilus
- Using the Desktop.
- Using the Panel
- Using the Applications and Actions Menus.
- Customizing your GNOME session.
- Logging Out
- Switching Desktops.

2.3. Managing Files and Directories
- File System Terms.
- A Larger Picture of the File System
- Managing Files
- File Compression and Archiving
- Managing Directories

2.4. Shell Prompt Basics
- Why Use a Shell Prompt.
- The History of the Shell
- Basics commands
- Determining Your Current Directory with pwd
- Manipulating Files in Your Current Working Directory
- Leaving your Current Working Directory
- Locating Files and Directories
- Viewing text files from the shell prompt
- Manipulating Information from the Shell
- Using Multiple Commands
- Ownership and Permissions

2.5. System Configuration
- Keyboard Configuration
- Mouse Configuration
- Date and time Configuration
- X-Windows System configuration
- User and group configuration
- Printer configuration

2.6. Package Management with RPM
- RPM Design Goals
- Using RPM
- Checking a Package's Signature
- Impressing Your Friends with RPM
- Additional Resources
- Installing Packages
- Removing Packages

Textbook:
1. Running Linux, 4th Edition – Matthias Kalle Dalheimer, Terry Dawson, Lar Kaufman, Matt Welsh.
2. Fundamentals of Computing- P.K Sinha BPB publication.

**CCA103 – Office Automation software**

Section 1. MS WORD

1.1 Word Processing Basic
- An Introduction to Word Processing
- Opening Word Processing Package
- The Menu Bar
- Using the Help
- Using the Icons below menu bar
-

1.2 Opening Documents and Closing documents
- Opening Documents
- Save and Save AS
- Page Setup
- Printing of Documents
- Display/Hiding of Paragraph Marks and Inter Word Space

1.3 Moving Around in a Document
- Scrolling the Document
- Scrolling by line/paragraph
- Fast Scrolling and Moving Pages

1.4 Using a Document/Help Wizard

1.5 Text Creation and Manipulation
- Paragraph and Tab Setting
- Text Selection
- Cut, copy and paste
- Font and Size selection
- Bold ,Italic and Underline
- Alignment of Text: Center, Left, right and Justify

1.5 Formatting the Text
- Changing font, Size and Color
- Paragraph indenting
- Bullets and Numbering
- Use of Tab and Tab setting
- Changing case

1.6 Handling Multiple Documents
- Opening and closing of Multiple documents
- Cut, Copy and Paste across the documents
- Saving of Clip boards

1.7 Table Manipulation
- Concept of table: Rows Columns and Cells
- Draw Table
- Changing cell Width and Height
- Alignment of Text in Cell
- Copying of cell
- Delete/insertion of row and columns

- Borders for Table

## 1.8 Printing
- Printing
- Print Preview
- Print a selected page

## Section 2. MS EXCEL
### 2.1 Elements of Electronics Spread Sheet
- Application/usage of Electronic Spread Sheet
- Opening of Spread Sheet
- The menu bar
- Creation of cells and addressing of cells
- Cell inputting

### 2.2 Manipulation of cells
- Enter texts numbers and dates
- Creation of tables
- Cell Height and Widths
- Copying of cells

### 2.3 Providing Formulas
- Using basic functions/formalism a cell
- Sum() function
- Average
- Percentage
- Other basic functions

### 2.4 Spread sheets for Small accountings
- Maintaining invoices/budgets
- Totaling of various transactions
- Maintaining daily and monthly sales reports

## Section 3. MS POWERPOINT
### 3.1 Basic
- Difference between presentation and document
- Using Power Point
- Opening a Power Point Presentation
- Using Wizard for creating a presentation

### 3.2 Creation of Presentation
- Title
- Text Creation
- Fonts and Sizes
- Bullets and indenting
- Moving to Next Slide

### 3.3 Preparation of Slides
- Selection of type of Slides
- Importing text from word documents
- Moving to next Slide

- The Slide manager

## 3.4 Providing aesthetics
- Slide Designs
- Background and Text colors
- Making your own slide format
- Footnotes and slide numbering

## 3.5 Slide Manipulation and Slide Show

## 3.6 Presentation of the Slides
- Using the Slide Show
- Printing the Slides and Handouts
- Slide sorter
- Title sorter

Textbook:
1. Microsoft Office 2000 for Windows – S.Sagman . Second Indian Print, Pearson Education

Reference:

1. Microsoft 2003 step by step – Prentice Hall of India.
2. Microsoft Word 2003 step by step – Prentice Hall of India
3. Microsoft PowerPoint 2003 step by step – Prentice Hall of India

## CCA104 – Internet Technologies
4.1 Introduction
- Introduction
- Growth and Owners of the Internet
- Anatomy of Internet
- History of World Wide Web
- Basic Internet terminologies
- Netiquette
- Internet Applications
- Commerce on the Internet
- Governance on the Internet
- Impact of Internet on Society
- Crime on/through the internet

4.2 Internet Technology and Protocols
- Internet Protocols
- TCP/IP
- Internet layers Protocols
- Network architecture
- Local area networks
- Wide Area Network
- Terminologies used in networking
- Accessing methods and Technologies
- Special consideration for the blind
- Adressing in Internet- IP
- Domains

- Internet Client-server modules
- Getting connected to internet
- Types of connectivity

4.3 World Wide Web
- What is  World Wide web
- Evolution of World Wide web
- WWW Servers
- HTTP and URL's
- Search Engines
- Categories of Search Engines
- Searching Criterion
- Hypertext

4.4 Browsers
- Basic features
- Bookmarks, History and Progress Indication
- Different Web Browser
- Customization of Web Browser
- Saving and printing web pages
- The Internet Explorer
- Searching and downloading on the internet

4.5 Electronic Mail
- Introduction to e-mail
- E-Mail Network and Servers
- E-Mail Protocols
- Structure of E-Mail messages
- E-Mail contents and encoding
- E-Mai routing
- E-Mai Encryption
- Address Book
- Signature file

4.6 File Transfer Protocol
- Introduction
- FTP Servers
- FTP Authentication
- FTP Clients
- FTP common commands
- GUI Based FTP clients
- Browser based FTP Clients

4.7 Telnet
- Introduction to Telnet
- Establishing Telnet connections
- Telnet Protocol characteristics
- Terminal Emulation
- User Authentication

4.8 User and Internet Relay Chat

- What is Usenet?
- Usenet components
- Usenet newsgroup
- How Usenet works
- Participation in newsgroup
- Hierarchy of Usenet newsgroup
- Searching newsgroup
- Subscribing to newsgroup
- News Server
- Concept of chatting
- Internet Relay Chat (IRC)
- Client software for Chat
- Chat Servers
- Smiley
- Net meeting

4.9 Web Publishing
- Overview
- Web Hosting
- Document Interchange Standards
- Components of Web Publishing
- Maintaining websites
- Document management
- Web page esign consideration and principles
- Web site planning
- Publishing tools

Textbook:
1.Internet and Web Page/ WebSite Design - B Underdahle and K Underdahle. Second Edition, 2001, IDG Books India (P) Ltd.

References:
   The Internet Book - D Comer. Second Edition, 2001, Prentice Hall of India
   The Complete reference to Internet - M L Young. Tata McGraw Hill

**CCA105 – Computer Graphics using Photoshop**
 5.1. ADOBE PHOTOSHOP
- The Basics
- Opening and Saving
- Selection Modes
- Transformations
- Color Modes and Color Models
- Adjusting Color
- Paintbrushes and Art Tools
- Digital Painting
- Moving Paint
- Advanced Painting Techniques
- Layers
- Using Masks
- Paths
- Filters to Improve Picture

- Adding Type to Pictures
- Special Effects and Useful Tricks
- Photoshop Plug-Ins and Add-Ons
- Compositing
- Photo Repair – Black and White
- Photo Repair – Color
- Photoshop for the Web

Textbooks:
1. Adobe Photoshop CS ( Classroom in a Book ) – Techmedia

## CCA106 – DESTOP PUBLISHING TOOLS – PAGEMAKER
Section I. Pagemaker
- PageMaker Basics
- Working wit Publication
- Drawing tools
- The Text Tools
- Importing Graphics
- Transformation
- Master Pages
- Utilities
- Working with text
- The Story Editor
- Working with frames
- Working with layers
- Long documents features
- PageMaker styles and templates
- Links management
- Hyperlinks and HTML

Textbooks:
1. PageMaker 7 Training Guide - Satish Jain (BPB Publication)

## DCA101 – Business Communication Skills
Lesson 1. Essentials of Grammar:
- Parts of Speech
- Punctuation
- Vocabulary Building
- Phonetics

Lesson 2. Office Management :
- Types of Correspondence
- Receipt and Dispatch of Mail
- Filing Systems
- Classification of Mail.
- Role & Function of Correspondence
- Managing Computer

Lesson 3. Letter & Resume Writing:
- Types of Letters-Formal / Informal

- Importance and Function
- Drafting the Applications
- Elements of Structure
- Preparing the Resume
- Do's & Don'ts of Resume
- Helpful Hints

Lesson 4. Quotations, Orders and Tenders :
- Inviting Quotations
- Sending Quotations
- Placing Orders Inviting Tenders

Lesson 4. Presentation Skills:
- Importance of Presentation Skills
- Capturing Data
- Voice & Picture Integration
- Guidelines to make Presentation Interesting
- Body Language
- Voice Modulation
- Audience Awareness
- Presentation Plan
- Visual Aids
- Forms of Layout
- Styles of Presentation.

Lesson 5. Interview Preparation:
- Types of Interview
- Preparing for the Interviews
- Attending the Interview
- Interview Process
- Employers Expectations
- General Etiquette
- Dressing Sense
- Postures & Gestures

Lesson 6. Group Discussion & Presentation:
  Definition
  Process
  Guidelines
  Helpful Expressions
  Evaluation

Reference book:

1. Communication Skills – Leena sen , Prentice-hall India.
2. Business communication- Asha kaul, Prentice hall India.


**DCA102 – Computer Communication & Networking**

8.1. Introduction

- Introduction to Networking
- Computer Network history
- Benefits of using computer networks
- Network design considerations

8.2. Network strategies and topologies
- Node connecting strategies
- Network computing strategies
- Network coverage
- Network topologies

8.3. Network hardware
- Network hardware component
- Transmission media
- Interface Devices
- Internetworking devices

8.4. Network Software
- Network Operating system (NOS)
- Network application

8.5. Standard and protocols
- Network standard
- Network protocols
- Difference between standards, protocol, and protocol implementation.

8.6. Data transmission
- Data transmission
- Signaling
- Switch Strategies
- Media access Control

8.7. Introduction to OSI model
- An overview of the OSI model
- How network layer communicate

Lesson 8. TCP/IP and the Internet
- TCP/IP- The internet protocol suite
- The Internet

Lesson 9. Network Management
- Functional Area of network Management
- Daily network management responsibilities

Lesson 10. The Future of Network
   Future of Network
   What Next.


**DCA103 – Data Modeling and Relational Database Design.**

## 9.1. Introduction to Databases, DBMS and RDBMS :
- Introduction, Information, Quality of Information, Information Processing,
- What is a Database?
- Why a Database?
- Characteristics of Data in a Database
- What is a Database Management System (DBMS)?
- Need for DBMS
- Types of DBMS
- Relational Database Management Systems (RDBMS),
- RDBMS Terminology
- Conclusion
- Review Questions.

## 9.2. Entity Relationship Modeling (ER)
- Overview of Entities and Entity Relationships
- Transformation of the Entity in Design
- Constructing Entities in ERD
- Defining Entity Relationship
- Defining Attributes for Entity

## 9.3. Designing Tables
- Types of table
- Basic table Structure
- Defining Tables
- Determining Column specification
- Table design Consideration
- Storage Consideration
- Ownership of table.

## 9.4. Data Normalization
- Overview of normalization
- Overview of the NORMAL FORM
- Advantage of normalization
- Disadvantages of Normalization
- Demoralization

## 9.5. Data Integrity
- Referential integrity
- Field- level integrity
- Table –level integrity
- Reviewing and finalizing the Database design

## 9.6. Designing Views
- Overview of views
- Why use views?
- View relationship
- Managing views
- Avoiding poor view design

## 9.7. Query Basics
- Performing Queries

- Multiple table queries

9.8. SQL
- SQL
- Optimizing query performance

9.9  Microsoft Access
- Starting Access 2003
- Access Startup Dialog Box
- Menus and Toolbars
- Using Toolbar Buttons
- Arranging Buttons on the Toolbar
- Viewing Data
- Creating an Access  Database and Tables
- Database Properties
- Modifying Tables
- Creating Forms
- Entering and Updating Data Using Forms
- Navigating between Records in a Form
- Editing and Deleting Data in a Form

References:

1. Database Design – Ryan K. Stephen & Ronald R .Plew. SAMS Techmedia.
2. Microsoft  Access 2003 step by step – Prentice Hall of India

**DCA104 – Web Programming**

10.1. Introduction to Web Site
- HTML on the Internet
- HTML Page Design and Implementation
- Putting your Web Pages Online

10.2. Creating Basic Web Pages with HTML 4.0
- Creating Basic HTML Documents
- Formatting Text as Paragraphs
- Applying Character Formatting
- Adding Graphics to a Web Page
- Linking Documents Together
- Adding Lists to a Web Page
- Building Navigational Imagemaps
- Formatting Content with Tables
- Framing Your Web Site
- Collecting Input with Forms
- Inserting Objects into a Web Page

10.3. Creating Advanced Web Pages with Dynamic HTML
- Making Your Web Sites Accessible to Impaired and International Users
- Adding JavaScript and VBScript to HTML

- Applying Cascading Style Sheets
- Positioning HTML Elements
- Scripting the Object Model
- Binding Data to HTML
- Embedding Web Fonts into a Web Page

10.4. Serving Multimedia Content
- Graphics
- Audio
- Video
- Animation
- Multimedia Applets
- Streaming Audio
- Streaming Video

10.5. Managing your Web Site
- Managing and Staging Files
- Verifying and Testing HTML Documents
- Listing Your Web Site in the Search Tools
- Building a Secure Web Site
- Using HTML and Site Tools

10.6. Learning by Example
- Creating a Personal Web Site
- Publishing a Corporate Web Site
- Building a Corporate Intranet
- Publishing an Online Magazine

10.7. FrontPage
- Laying out a page with Frames
- Adding User Navigational Components
- Working with forms
- Displaying Dynamic Content
- Managing workgroup Development
- Maintaining a site

<u>Textbooks:</u>

1. Special Edition Using HTML 4 - by Jerry Honeycutt Macmillan Computer Publishing.

<u>References:</u>

1. Principles of Web Design -  J Sklar Second Education, 2001, Vikash Publishing House Pvt. Ltd.


**DCA105 – Visual programming using Visual Basic**

11.1. Visual Basic Fundamentals
- Building Your First Application
- What's New with Visual Basic 6

- Working in the Visual Basic 6 Programming Environment
- Using the Intrinsic Controls
- Working with Projects in Visual Basic 6
- Working with Properties, Methods, and Events

## 11.2. Programming with Visual Basic

- Using Data Types, Constants, and Variables
- Making Statements in a Program
- Working with Conditional Statements
- Working with Loops
- Working with Arrays
- Working with Strings and Typecasting

## 11.3. The Elements of Visual Basic 6
- Creating Menus in Your Programs
- Enhancing Your Programs with Forms and Dialog Boxes
- Handling Keyboard and Mouse Input in Your Programs
- Working with Time and Timers
- Adding Graphics to Your Programs
- Writing Reusable Code with Subs and Functions
- Saving and Retrieving Your Data with Visual Basic
- Deploying Your Visual Basic Applications

## 11.4. Database Programming with Visual Basic 6
- Database Basics and the Data Control
- Making Reports in Visual Basic 6
- Enhancing Your Programs Using the Advanced Data Controls

<u>Textbooks:</u>

1. Using Visual Basic 6 - Bob Reselman, Wayne Pruchniak, Richard A. Peasley, Eric A. Smith. Macmillan Computer Publishing