

INSTITUTE OF ADVANCED STUDIES IN
EDUCATION (DEEMED UNIVERSITY)
GANDHI VIDYA MANDIR
SARDARSHAHR

Detailed Syllabus

For

Distance Education

**CERTIFICATE IN COMPUTER APPLICATION
(CCA)**

(YEARLY SYSTEM)

COURSE TITLE : CCA
DURATION : 01 YEARS
TOTAL DEGREE MARKS : 400

COURSE TITLE	PAPER CODE	MARKS		
		THEORY	INTERNAL	TOTAL
FUNDAMENTAL OF COMPUTER	CCA-110	70	30	100
INTRODUCTION TO C	CCA-120	70	30	100
PROGRAMMING AND PROBLEM SOLVING THROUGH C++	CCA-130	70	30	100
APPLICATION/ WORKING WITH PROGRAMMING LANGUAGE	CCA-140	70	30	100

CCA-110: FUNDAMENTAL OF COMPUTERS

History of Computer

- Abacus of ENIAC, Computer Generations, Languages, Software and application, Computer in India.

Computers – An Introduction

- Functions of Computer: input, processing, output, Functions of ALU, control, storage, input and output devices.
- Application of Computer: viz. Railway reservation, Electricity/Telephone billing etc.

Types/Classification

- Classification of Computers: Home, Micro, Mini, Mainframe, Super Computers.
- Centralized Decentralized distributed systems.
- Networks of Computers- Homogenous, Heterogeneous Characteristics.
- Clock Speed
- Accuracy

Functions

- Bits, bytes, characters, field, record, file.

Representation of Data: Binary, binary addition and subtraction, octal, hexadecimal, ASCII, EBCDIC, Positive versus Negative integers, Floating point numbers.

- Higher level and Lower level Languages.

HARDWARE AND SOFTWARE CONCEPTS

- Computer Hardware; Electronic Digital Computers.
- Input devices: On line data input devices & their importance, Dumb terminals, Intelligent terminals, voice recognition devices, Touch tone terminals, Mouse.
- Offline data input : Key to disk system, Key to tape system, Key to punched card.
- Source data input : Point of Sale terminals, Laser beam scanners, Optical sense readers, Optical Character readers (OCR), Magnetic ink character readers (MICR).
- Output Devices: Hard copy device-Dot matrix printer, Ink jet printers, Laser printers, Plotter output.
- Soft copy Devices: VDU (Monochrome & Colour), LCD (Liquid Crystal Display), Audio response unit; Micro films.
- CPU Architecture: ALU: Instruction Execution, Fetch and Execution cycles, Control unit Micro-programming concept, Speed mismatch between CPU and memory.
- Memory Devices: RAM, ROM, PROM, EPROM, ECC RAM, EDO RAM and their specifications, memory storage locations, use of memory addressing in programming.
- Secondary memory Devices: Floppy disk, hard disk (removable/fixed), Concept of cylinders, tracks, and sectors, Advantage and Limitations of secondary storage, access time, access methods (Sequential, Direct, Indexed) & CD- ROM.

Software Concepts:

- Application vs. system software, compiler, interpreter, Multiuser, Multitasking operating systems.
- Virus protection diagnostic tools.

Introduction to PC's/Micro computers and Operating Systems:

WINDOWS-98/2000, MS DOS, NETWARE

INTRODUCTION TO

PC, PC/XT, PC/AT, LAP-TOP, PALM-TOP, DESK-TOP & Minimum hardware and software configuration of the above.

DOS/WINDOWS commands-

- Profiling an Operating System
- Booting Sequence: Operating System files and Command Processor file.
- Definition of a file; File names.
- Booting from floppy and HDD.
- Warm and Cold reboot

BASIC DOS COMMANDS

Using WINDOWS

- Start Windows
- Using different windows simultaneously
- Moving through windows and mouse
- Maximize/ Minimize Windows.
- Use of help feature
- Exit Windows
- Starting an application
- Run and Manage multiple applications
- Close applications

Using the Program Manager

- Create/Add Groups using Program manger
- Move/Copy/Delete Program Items.
- Change Programme/their properties
- Expand compressed directories and files
- Open and manage multiple windows
- View and sort files.
- Save File Manager Settings
- Exist File Manager

Using Desk Top ICONS

- My Computer
- Network Neighborhood
- Control Panel
- Add Printer
- Create/Delete/Rename Folder

File Management through WINDOWS

- Select Files and Directories
- Copy, Move, Delete, Files/Directories
- Creating and renaming Files/Directories
- Disk Operating using File Manager

Using Essential Accessories

- Starting and Using Note-Pad
- Type and Edit text in a document in Note-Pad
- Save and Print a document file in Note-Pad
- Starting and using paintbrush
- Printing a drawing

Basic shell Commands of UNIX:

- Date, echo, who, is , cp, rm, mv, cd,
- Mkdir, rmdir, chmod, sort, grep, passwd etc.

Communication & Network Concepts:

- Concepts of batch vs. on line environment.
- Single user v/s, Multiuser environment, Multi tasking and Multi-processing.
- Network management concept.
- Concept of batch files in MS DOS

Concept of Information & Data- Processing

- Information concepts and processing: Evolution of Information processing, data, information, Language and Communication.
- Definition of Information: difference between Data and Information (analogous to raw material or/and finished product).
- Value of Information: relevance to receiver, decision-making potential.
- Data concepts: symbols which describe record reality: logical and physical concepts.
- Logical concepts of data: Entities, Attributes and Relationships.
- Physical concepts: Storage and Retrieval of data: comparison of manual and computer storage and organization of data as files.
- Data processing: storage, retrieval and processing of data as files.
- Data processing: storage, retrieval and processing of data, provision of Information of relevance.
- Techniques/ Methods of Data processing.

First aid Maintenance

- Measuring Main Supply, Earth voltage & checking earthing.
- Precautionary measures in Handling/Operating.
 - VCD, CD, HDD, FDD, DVD, SCANNER
 - Modem, Keyboard, Mouse, Hub, Monitor
 - UPS, CVT
- Printers: Dot matrix, Inkjet, Laser
 - Feeding paper
 - Installing the cartridge
 - Refilling the cartridge

Program design & Logic

- Problem analysis, evolution using step wise refinement Algorithm. Data Flow Diagrams, structure charts, decision tables, pseudo coding. More emphasis on flow charts and its symbols.
- Illustrations with summing series, sorting, searching merging Analysis of algorithms-space and time trade offs. Programme documentation, style in programming, program testing. Flow charts and Data Flow Diagrams.
- Program testing and debugging efficient programming techniques Structured programming.

Language to C

- Overview of C
- Constants, Variables, and Data types
- Operators and expression
- Managing Formatted/Unformatted Input and Output
- Decision making and Branching
- Decision Making looping
- Arrays
- Handling of Character Strings
- User defined Functions
- Structures and Unions
- Pointers
- File management in C

CCA-130: PROGRAMMING AND PROBLEM SOLVING THROUGH C++

- Over view of programming: Introduction to Computer based problem solving and strategies for the same, Programs Design and implementation issue, Algorithm, Data organization, Data Structures, Use of Procedures for Modular Design, documentation of programs and program testing.
- Fundamental of C++ Programming: Structure of C++ programming Data Type, Data Structure, Constants and variables.
- Operators: Arithmetic, Relation and Logical, Control if-then, for-while.
- Arrays: Array declaration, one and two dimensional array-Function; General, function arguments, return value.
- Basic I/O: Formatted and unformatted I/O
- Advanced Programming Techniques
- Dynamic Data Structures in C++
- Miscellaneous features: File handling.

Features of OOPS: Abstracting, Encapsulation, Inheritance, and Polymorphism

CCA-140: APPLICATION/WORKING WITH PROGRAMMING LANGUAGE

Office Automation Package (MS Office: Word, Excel etc.)

WORD PROCESSING PACKAGE

Basics of Word processing

- Text Selection
- Opening Documents and Creating Documents
- Saving Documents/Quitting Documents
- Cursor Control
- Printing Documents
- Using the Interface (Menu, Toolbars)
- Editing Text (Copy, Delete, Move etc.)
- Finding and Replacing Text
- Spell Check Feature/Auto correct Feature, Grammar Facility
- Auto text, Character formatting, page formatting.

DOCUMENT ENHANCEMENT

- Adding borders and shading, Headers and Footers
- Setting Up Multiple columns, Sorting blocks, margins and Hyphenating Documents
- Creating Master Document, Data Source
- Merging Documents
- Using Mail merge Feature for Labels and envelopes

Graphics and using Templates and Wizards

- Hands-on experience in Word processing under **DOS**
- Familiarity in Word processing under Windows.

SPREADSHEET PACKAGE

Usage of Ms- Excel, Worksheet Basics

- Data Entry in cells, entry of numbers, text and Formulae
- Moving data in a Worksheet
- Moving around in a worksheet
- Selecting Data range
- Using the Interface (Toolbars, Menus)
- Editing basics
- Working with Workbooks
- Saving and Quitting
- Cell Referencing

Formatting and Calculations

- Calculations and Worksheets- Using Auto fill
- Working with formulae
- Efficient Data Display with Data Formatting, Number formatting etc.
- Working with ranges
- Worksheets printing

Working with Graphs and Charts

- Adding/Formatting Text data with Auto format
- Creating Embedded Chart Using Chart Wizard
- Moving Charts
- Updating charts
- Changing Chart Types
- Creating Separate Chart Sheet
- Adding Titles, legends and Gridlines
- Printing charts.

Database Management

- Finding Records with Data Form
- Adding/Deleting Records
- Filtering Records in a worksheet

Xbase package

- Concept of data base Management System
- Difference between data files and database files
- Creating Data Base Files and Structures
- Editing Data base Files.
- Record pointer positioning features
- Specific record locating features
- Information display commands
- Indexed files
- Create, delete, Save and recall memory variables.
- Using in-built report and label facility
- Using table facility
- Format files
- Using various functions and set commands available
- Handling of multiple database files.

Developing programmes for Commercial Application using Windows based, X-base package.

An Overview of Selected packages

- Desktop publishing
- Popular packages on Communications like CCMAIL PRUCOMPLUS etc.
- Presentation Graphics features, CorelDraw, PowerPoint etc.
- Multimedia / Animation package.

Basic Concepts of Networking/ Communication:

- Concept of Networking, LAN, WAN & Email
- Internet Connection Setup & Sharing.
- Protocols TCP/IP, FTP, ISP, NSP etc.
- Concept of Proxy server, Web server, Client server etc.
- Concept of Sites & pages
- Introduction to BHTML, DHTML, XML.
- Designing Web-Pages: Static & Dynamic.

Data Entry in Hindi/Recognized Regional Language

- Data entry

Awareness of IT – Act 2000

- Provisions of Act
- Types of offences, Fines, Imprisonment

Development of Soft Skills

(Will be covered in the time allotted for **Extra-Curricular-Activities**)

- Work Culture
- House keeping
- Communication Skill
- Personality Building viz. punctuality, Obedience, inter-personal-communication
- Group-activities: Sports, Debates, Tree plantation, Gardening & Incl. Visit etc.

Preparation for Viva/Interview