Diploma in Computer Applications

PROGRAMME GUIDE

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INTRODUCTION

Computers have brought about major changes in all spheres of life, and especially so in business and management. Today it is extremely difficult to imagine the world without computer. Businesses rely heavily on computer technology to assists them in almost every aspect of their work. This program is a perfect blend of online learning as well as traditional distance learning program for gaining basic computer skills in application side.

ACADEMIC OBJECTIVES

- To demonstrate a sound knowledge in basics of computer application.
- To demonstrate a practical knowledge for solving the problems.
- To demonstrate a knowledge skills in further study.
- To demonstrate a knowledge skills in Government Sector and Banking sector jobs.
- To demonstrate a knowledge skills in IT/ Business environment.

PROGRAMME CODE: 1K24

DURATION OF THE PROGRAMME:

Minimum Duration   1 Year

Maximum Duration   3 years

MEDIUM OF INSTRUCTION/ EXAMINATION:

Medium of instruction and Examination shall be **English**.

COURSE CODE	COURSE TITLE	Cr.	CA	ETE(Th.)	ETE(Pr.)
		Scheme			
TERM 1					
DENG101	COMMUNICATION SKILLS - I	4	20	80	0
DCAP101	BASIC COMPUTER SKILLS	4	20	60	20
DCAP102	BASIC PROGRAMMING SKILLS	4	20	60	20
DCAP103	PRINCIPLES OF OPERATING SYSTEMS	4	20	80	0
DCAP104	EXPOSURE TO COMPUTER DISCPLINES	4	20	80	0
TERM 2					
DENG102	COMMUNICATION SKILLS - II	4	20	80	0
DCAP105	WORKSHOP ON COMPUTER HARDWARE & NETWORK	4	20	0	80
DCAP106	OPERATING SYSTEM TOOLS	4	20	60	20
DCAP107	OBJECT ORIENTED PROGRAMMING	4	20	60	20
DMGT106	MANAGING HUMAN ELEMENTS AT WORK	4	20	80	0
TOTAL CREDITS		**40**			

Course Code:	D	E	N	G	1	0	1	Course Title:	**COMMUNICATION SKILLS-I**

WEIGHTAGE	
CA	ETE (Th.)
20	80

COURSE CONTENTS:

Sr. No.	Topics
A	**Speaking Skills ---**to enhance the basic speaking skills, one needs apt word and the correct pronunciation. • Simple rules of pronunciation and intonation • Theme based vocabulary building • Antonyms/ Synonyms/ Homonyms
B	**Listening Skills –** to enhance correct understanding of the language being spoken and to give apt responses in return where required. • Types of listening and Traits of a good listener • Note taking • Exercises Practising Listening Skills-- talk shows , commentaries, etc., followed by identifying the theme, supporting ideas, or and digressions if any
C	**Reading Skills---**to enhance independent reading, comprehension and quick reading of any given texts & aesthetic appreciation • Comprehension Passages • News / Magazine articles on stereotype topics **and / or** current topics • Poems – Abu Ben Adhem, The Tiger
D	**Writing Skills –** to reinforce the grammatical structures • **Grammar** --Kinds of sentences**:** Positive, negative, statement, interrogative and exclamatory [learn the functional aspects of these sentences—when are they used, how are they structured etc.] • **Articles and Nouns**—Countable / uncountable , Names with and without THE • **Adjectives /Adverbs** – [describing things, adding information, circumstances] • **Prepositions** of time/ place/ reason: in , on, at , into , to , for , of, about, with, after etc.
E	**Writing skills** ----- to enhance formally structured effective official writing • Basic cohesive paragraph writing • Note making • Resume writing • Job application writing/ acceptance letter

READINGS: SELF LEARNING MATERIAL.

Course Code:	D	C	A	P	1	0	1	Course Title:	**BASIC COMPUTER SKILLS**

WEIGHTAGE		
CA	ETE (Pr.)	ETE (Th.)
20	20	60

COURSE CONTENTS:

Sr. No.	Topics
1.	**Computer Fundamentals.** Characteristics & Generation of Computers, Block diagram of Computer **Data Representation:** Binary Number System, Octal, Hexadecimal and their Conversion.
2.	**Memory:** Types, Units of memory, RAM, ROM, Secondary storage devices – HDD, Flash Drives, Optical Disks: DVD **I/O Devices** – Keyboard, Mouse, LCDs, Scanner, Plotter, Printer& Latest I/O devices in market
3.	**MS Windows**: Desktop, My Computer, Files and folders using windows explorer; Control Panel, Searching Files and folders.
4.	**MS Word:** Introduction, Environment, Help, Creating & Editing Word Document. Saving Document, Working with Text: Selecting, Formatting, Aligning & Indenting.
5.	**MS Word**: Finding Replacing Text, Bullets & Numbering, Header & Footer, Working with Tables, Properties Using spell checker, Grammar, AutoCorrect Feature, Synonyms and Thesaurus.
6.	**MS Word:** Graphics: Inserting Pictures, Clipart, Drawing Objects, Using Word Art. Setting page size and margins; Printing documents. Mail Merge Practical.
7.	**MS-Excel:** Environment, Creating, Opening, & Saving Workbook. Range of Cells. Formatting Cells, Functions: Mathematical, Logical, Date Time, Auto Sum
8.	**MS-Excel**: Formulas. Graphs: Charts. Types & Chart Tool Bar. Printing: Page Layout, Header and Footer Tab.
9.	**MS PowerPoint:** Environment, Creating and Editing presentation, Auto content wizard, using built-in templates **MS PowerPoint:** Types of Views: Normal, Outline, Slide, Slide Sorter, Slide Show, Creating customized templates; formatting presentations **Graphics:** AutoShapes, adding multimedia contents, printing slides
10.	**Internet:** Basic Internet terms: Web Page, Website, Home page, Browser, URL, Hypertext, ISP, Web Server Applications: WWW, e-mail, Instant Messaging, Internet Telephony, Videoconferencing, Web Browser & its environment

LABORATORY WORK:

1. Hardware familiarizing with various I/O Peripheral devices, storage devices.
2. Familiarity with DOS, Implementing various internal and external commands in DOS.
3. **MS Windows:** Familiarizing with windows operating system; using built-in accessories; managing files and folders using windows explorer; working with control panel; installing hardware and software.
4. MS-Office (or any other Office Suite), meaning and features , its components.

5. MS-Word (or any other word processor) : Creating Document Files, Saving, Closing Files, Page Settings and Formatting Text. Spell Checking, Thesaurus, Creating Tables, Adding rows, columns. Printing Documents, Setting Print Settings, creating labels and mail merge, taking Print outs
6. Ms-Excel-Working with worksheet, formulas & functions ,Inserting charts, Printing in Excel
7. MS Power Point-Views , Designing, viewing, presenting & Printing of Slides.
8. Internet: Navigating with Internet Explorer; surfing the net, using search engines; using email facility.

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:

1. ITL Education Solutions Limited, "Introduction to Information Technology", Pearson Education, New Delhi
2. SAMS Teach Yourself Microsoft Office 2003 by Greg Perry
3. Peter Norton, "Introduction to Computers", Tata McGraw Hill Company, New Delhi.
4. Alexis Leon, Mathews Leon, "Fundamentals of Information Technology", Leon Techworld.

Course Code:	**D**	**C**	**A**	**P**	**1**	**0**	**2**	Course Title:	**BASIC PROGRAMMING SKILLS**

WEIGHTAGE		
CA	ETE (Pr.)	ETE (Th.)
20	20	60

COURSE CONTENTS:

Sr. No.	Topics
1.	**Introduction:** ANSI C standard, Overview of Compiler and Interpreters, Structure of C Program ,Programming rules, Execution
2.	**Basics-The C Declarations:** C Character Set, keywords, **:** Identifiers, data types, operators, constants and variables **Operators & Expressions**
3.	**Input/ Output in C:** Formatting input & output functions.
4.	**Decision making statements** – if, else if **Control Statements:** For, do while, while.Control transfer statements - break, continue.
5.	**Arrays and Strings**: Defining arrays; I/O of arrays, I/O of string data; built-in library functions to manipulate strings, array of strings
6.	**Pointer**: Introductions, Features, Declaration, Pointers and Arrays, pointers to pointers ,Pointers and strings, Void Pointers
7.	**Functions:** Defining and accessing a functions, passing arguments – call by value, function prototypes, recursive functions **Storage Classes:** Storage classes and their usage
8.	**Structures & Unions:** Defining and processing structures, array of structures, nested structures, Unions & difference from Structures
9.	**Files:** Opening, reading, writing & Closing file
10.	**Additional In C:** Dynamic memory allocation, Memory models, Linked List

LABORATORY WORK:

1. Implementation of C Programming Concepts (Operators, Data types, Control Statements, Functions, Arrays, Strings, Structures, Union, Pointers, File Handling)

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:

1. Ashok N. Kamthane, "Programming with ANSI & Turbo C", Pearson Education, Year of Publication:2008
2. E.Balagurusamy , "Programming in ANSI C ", Tata McGraw Hill Publishing Company Limited, New Delhi.
3. B.W. Kernighan and D.M. Ritchie, "The C Programming Language", Prentice Hall of India, New Delhi
4. Byron Gottfried , "Programming With C", Tata McGraw Hill Publishing Company Limited, New Delhi
5. Behrauz A.Foruzan & Richard F.Gilberg, "Computer science – A structure programming approach Using C", Thomson Asia, 2001.

Course Code:	**D**	**C**	**A**	**P**	**1**	**0**	**3**	Course Title:	**PRINCIPLES OF OPERATING SYSTEMS**

	WEIGHTAGE	
	CA	ETE (Th.)
	20	80

COURSE CONTENTS:

Sr. No.	Topics
1.	**Introduction:** Operating system Meaning, Supervisor & User mode, Meaning of System Calls & Kernel, Operating system operations & Functions, Types of OS: Single-processor system, multiprogramming, Multiprocessing, Multitasking, Parallel, Distributed, RTOS etc.
2.	**Process management**: Process Concept, PCB, Process Scheduling, Cooperating Processes, Overview of Inter process Communication.
3.	**Process Management:** Concept of Thread, Multithreading, Context Switching, scheduling criteria, Type of Scheduling: Long term, Short term & Medium term scheduling, scheduling algorithms, Overview of thread scheduling,
4.	**Process Management:** Concept of critical section, Ways to handle critical section problem, semaphores, Deadlock concept & handling
5.	**Memory Management**: Logical & Physical Address space, Swapping, Contiguous memory allocation, paging, segmentation, Virtual memory, demand paging, Overview of Page replacement, Thrashing
6.	**File Management:** File concepts, access methods, directory structure, file sharing, protection, Allocation methods, Free space Mgt., Directory Implementation.
7.	**Secondary Storage Structure:** disk structure, Disk Scheduling, disk management, swap-space management, Overview of RAID structure.
8.	**System Protection:** Goals of protection, Access matrix and its implementation, Access control and revocation of access rights, capability-based systems
9.	**System Security:** Security problem, program threats, system and network threats, cryptography as a security tools, user authentication, implementing security defenses, firewalling to protect systems and networks.
10.	Case study of Windows OS or Linux or any other OS

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:

1. Silberschatz, Gagne & Galvin, "Operating System Concepts", John Wiley & Sons, Seventh Edition or Latest.
2. A.S. Tanenbaum : Operating System : Design and Implementation, Prentice Hall of India.
3. Milankovic, Operating system, Tata Macgraw Hill, New Delhi.
4. Stalling, W., "Operating Systems", 2nd edition, Prentice Hall.
5. Deitel H. M., "Operating Systems, 2nd edition, Addison Wesley.

Course Code:	D	C	A	P	1	0	4	Course Title:	**EXPOSURE TO COMPUTER DISCIPLINES**

COURSE CONTENTS:

WEIGHTAGE	
CA	ETE (Th.)
20	80

Sr. No.	Topics
1.	**Processing Data:** Transforming data into information, How computers represent data, How computers process data, Machine cycles, Memory, Registers, The Bus, Cache Memory
2.	**Using Operating Systems:** operating system basics, Purpose of the operating system, types of operating system, Providing a user interface, Running Programs, Sharing Information, Managing Hardware, Enhancing an OS with utility software.
3.	**Networks:** Sharing data anytime anywhere, Uses of a network, Common types of a network, Hybrid Networks, How networks are structured, Network topologies and Protocols, Network Media, Network Hardware
4.	**Data Communication**: Local and Global reach of the network, Data communication with standard telephone lines and Modems, Using Digital Data Connections, Wireless networks
5.	**Graphics and Multimedia:** Understanding graphics File Formats, Getting Images into your Computer, Graphics Software, Multimedia Basics
6.	**Data Base Management Systems**: The Database, The DBMS, Working with a database, Databases at Work, Common Corporate Database Management Systems
7.	**Software Programming and Development:** What is computer Program, hardware/Software Interaction, Planning a Computer Program, How programs Solve Problems,
8.	**Programming Languages and Programming Process:** Categories of Programming Languages, Machine and Assembly Language, Higher Level Languages, WWW development languages, The SDLC of Programming
9.	**Understanding The Need of Security Measures:** Basic Security Concepts, Threats to Users, Threats to Hardware, Threat to Data, Cyber Terrorism.
10.	**Taking Protective Measures:** Keeping your System Safe, Protecting Yourself, Protecting your Privacy, Managing Cookies, Spyware and other BUGS, Keeping your data secure, Backing Up data, Safeguarding your hardware

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:

1. Title: Introduction to Computers, Author: Peter Norton, Publisher: McGraw Hill, Sixth Edition
2. Title: Maran Illustrated Computers Guided Tour, Author:Ruth Maran; Kelleigh Johnson, Publisher: Course Technology PTR
3. Title: Computing Fundamentals, Author: Peter Norton, Publisher: McGraw Hill, Sixth Edition.

Course Code:	**D**	**E**	**N**	**G**	**1**	**0**	**2**	Course Title:	**COMMUNICATION SKILLS-II**

WEIGHTAGE	
CA	ETE (Th.)
20	80

COURSE CONTENTS:

Sr. No.	Topics
A	**Speaking Skills--** to enhance the fluency/ efficiency and confidence of using a foreign language • Conversation building followed by • Dialogue writing based on formal / official situations, informal and regularly occurring situations. **Telephone skills--** [how to handle telephone calls, telephone etiquettes, making phone calls, taking incoming calls]
B	**Reading Skills ---**to enhance independent reading, comprehension and quick reading of any given texts & aesthetic appreciation Poems--- "Stopping by the Woods on a Snowy Evening" & " Ozymandias"
C	**Writing Skills --**to reinforce the grammatical structures and to enhance formally structured effective official writing • **Grammar** – Tenses: Present tenses – [simple & continuous] Past tenses [simple/continuous/ used to would to] Present Perfect and Past Perfect [simple/ continuous] Future [plans/ intentions/ predictions/ going to/ will present simple/ be/ about to / future continuous/ Future Perfect] • **Parts of Speech** – common errors in English • **Use of Capitals and Basic Punctuations-**- [comma, full stop, colon, semi colon, hyphen , inverted commas, apostrophe].
D	**Writing Skills --**to reinforce the grammatical structures and to enhance formally structured effective official writing • Basics of official correspondence-- principles of writing general and official correspondence • Format of Basic Formal letter-- placing order, cancellation, enquiry • Guidelines for writing & Planning effective Business letters • Kinds Of Business Letters-- Specimens + Exercises

READINGS: SELF LEARNING MATERIAL.

Course Code:	D	C	A	P	1	0	5	Course Title:	**WORKSHOP ON COMPUTER HARDWARE & NETWORK**

WEIGHTAGE	
CA	ETE (Pr.)
20	80

COURSE CONTENTS:

Sr. No.	Topics
1.	Introduction of Hardware and Software/components of computer.
2.	Mother boards, Chipsets & Microprocessor concept & latest available in market. Basics & types of Floppy drive/HDD/DVD/RAM /SMPS/ /BIOS etc
3.	Handling & Holding sensitive equipments, Installing Motherboards, Choosing Cabinet & Cooling considerations, Installing CPU.
4.	Assembling of different parts of computers.
5.	Knowing ports, wires attached in the pc. Knowing SATA slots, IDE Slots
6.	CMOS. Setting BIOS configurations.
7.	Installation of OS (Linux/Windows) and application/utility software, Handling Viruses
8.	Networking Basics: Different Wires, Hubs, Connectors. Punching/Crimping Tools. Switches, I/O Sockets
9.	Creation of Cross Wires and Direct Cables.
10.	IP & Setting up a computer on LAN

READINGS: SELF LEARNING MATERIAL

ADDITIONAL READINGS:

1. Author: Robert Bruce Thompson & Barbara Fritchman Thompson, Title:P C Hardware in a nutshell, Publishers: O'REILLY, Year of Publication: 2004
2. Author: Steve Rackley ,Title: Networking in Easy Steps,Publishers: Wiley,Year of Publication: 2008
3. Author: Peterson: PC Assembling, TMG
4. Concentration shall not be to teach theoretical concepts; rather stress shall be on giving hands on practical exposure to computer H/W and Setting up small wired N/W.

Course Code:	D	C	A	P	1	0	6	Course Title:	**OPERATING SYSTEM TOOLS**

WEIGHTAGE		
CA	ETE (Pr.)	ETE (Th.)
20	20	60

COURSE CONTENTS:

Sr. No.	Topics
1.	**INSTALLING LINUX:** Preparing for the installation, The installation , Root account configuration
2.	**RED HAT LINUX 9 BASICS:** Moving around the desktop, Using applications, The file system, hierarchy, Navigating in the file system, Managing Hardware, Configuring the desktop, Managing processes, Managing Users
3.	**CONNECTING TO THE INTERNET:** Connecting to the Internet, Managing Multiple ISPs and connections, Software and configuration
4.	**INSTALLING SOFTWARE:** RPM, its benefits, The RPM command line tool
5.	**EVERYDAY APPLICATIONS:** Office applications, Internet applications, Personal information management
6.	**EVERYDAY APPLICATIONS:** multimedia applications, System applications
7.	**THE SHELL:** The Shell as a command line interface, types of shell, Built-in programs and external programs.
8.	**THE SHELL:** Common Shell commands , Special keys and shortcuts, Command line syntax.
9.	**THE FILE SYSTEM:** The File System, anatomy of a file, File Search Utilities, locate command, find command, GNOME, Navigating file system
10.	**SERVERS:** Introduction to DNS, FTP, Apache, DHCP servers.

READINGS: SELF LEARNING MATERIAL.
ADDITIONAL READINGS:

1. Beginning RedHat Linux 9, by sandeep Bhattacharya published by Wiley India Pvt Ltd.
2. Author: Christopher Negus, Title: Fedora 9 & Red Hat Enterprise Linux Bible, Publishers: Wiley, Year of Publication:2004
3. Ellen Siever, Aaron Weber, Stephen Figgins Linux in a NutShell, O Reilley & Associates.
4. Red Hal linux Unleashed
5. Matchtel Garless, Introduction to Linux: A Beginner;s Guide, Fultus Technical Library

Course Code:	D	C	A	P	1	0	7	Course Title:	**OBJECT ORIENTED PROGRAMMING**

WEIGHTAGE		
CA	ETE (Pr.)	ETE (Th.)
20	20	60

COURSE CONTENTS:

Sr. No.	Topics
1.	**Review:** Review of basic concepts of object-oriented programming & Introduction of OOP Languages, Comparison between procedural programming paradigm and object-oriented programming paradigm.
2.	**Beginning with OOP Language:** Review of Tokens, Expressions, and Operators & Control Structures. Scope Resolution operator , member dereferencing operator, Reference Variables Review of Functions, Function Overloading, Inline Functions, Default Arguments
3.	**Classes & Objects:** specifying a class, Defining member functions, creating class objects, accessing class members. Access specifies – public, private, and protected Classes, its members, objects and memory allocation
4.	Static members, the const keyword and classes, the static objects. Friend Function & its usage Empty classes, nested classes, local classes
5.	**Constructors & Destructors:** Need for constructors and destructors, copy constructor, dynamic constructors, Destructors, constructors and destructors with static members
6.	**Operator Overloading & Type Conversion:** Defining operator overloading, rules for overloading operators, Overloading of unary operators and various binary operators with friend functions and member functions Type conversion – basic type to class type, class type to basic type, class type to another class type.
7.	**Inheritance:** Introduction, defining derived classes, forms of inheritance, Ambiguity in multiple and multipath inheritance, virtual base class, Overriding member functions, order of execution of constructors and destructors **Virtual functions & Polymorphism:** virtual functions, pure virtual functions, abstract classes, introduction to polymorphism
8.	**Pointers & Dynamic Memory Management:** understanding pointers, Accessing address of a variable, declaring & initializing pointers, Pointer to a pointer, pointer to a function, dynamic memory management - new and delete operators, this pointer
9.	**Console I/O:** concept of streams, hierarchy of console stream classes, Unformatted I/O Operations, Managing output with manipulators.
10.	**Working with Files**: Opening, Reading, Writing, Appending, Processing & Closing difference type of files, Command line Arguments

LABORATORY WORK:

Sr. No.	Topics
1.	Implementation of Concepts of OOP using C++ covered in the syllabus

READINGS: SELF LEARNING MATERIAL

ADDITIONAL READINGS:

1. E. Balagurusamy, "Object Oriented Programming with C++", Tata McGraw Hill
2. Author: Herbert Schildt,Title: Teach Yourself C++,Publishers: Tata Mc Graw Hill,Year of Publication: 2005
3. J Marget A. Ellis and Bjarne Stroustrup ,The Annotated C++ reference manual, Addison Wesley New York.
4. Waite Group Lafore R.,Object oriented programming in C++, Waite Group Lafore R.
5. Lippman F. B.C++ Primer, Addison Wesley

Course Code:	D	M	G	T	1	0	6	Course Title:	**MANAGING HUMAN ELEMENT S AT WORK**

WEIGHTAGE	
CA	ETE (Th.)
20	80

COURSE CONTENTS:

Sr. No.	Topics
1.	Introduction to human Resource Management: HRM Policies and their relationship with other fields. E – Human Recourse Management.
2.	Job designing, Recruitment, Selection, Induction and Placement
3.	Training and development: training process, methods and evaluating the training effort,
4.	Appraising and evaluating people in the organisation
5.	Compensation and Rewards,
6.	Industrial Relations,
7.	Improving Communication and Managing Conflict, The Dynamics of Change
8.	Importance of Small Groups and Informal Organizations.
9.	Individuals and Self Management, Handling Stress at workplace
10.	Motivating and Morale Boosting, Leading, Job Satisfaction and Quality of Work Life

READINGS: SELF LEARNING MATERIAL.

ADDITIONAL READINGS:
1. Dessler, Gary, Human Resource Management, Pearson Education, New Delhi, 2007
2. Robbins S P, Timothy A. Judge & Sanghi Seema, Organizational Behaviour, Pearson Education, New Delhi, 2009.
3. Aswathappa, K. Human Resource and Personnel Management, Text and Cases. Tata McGraw – Hill, New Delhi, 2007.