COMPUTER APPLICATION

Sl. No.	Paper	Name of Paper	Lict/Week		Exam. Hour	Marxs
			Th	Prac		
1	I	Computer Fundamentals	5	1	3	75
2	II	Operating System	4	2	3	75
3	III	Business Data Processing	4	2	3	75
4	IV	Practical	4	2	3	50
5	V	On the Job Training				25

COMPUTER APPLICATION

(Atuglevel)

Paper I: Computer Fundamentals:

What is a Computer – an introduction, uses of Computers in modern Society e.g. Weather forecasting, census, oil exploration, speech recognition, banking, publishing, accounting, research etc.

Information concepts and processing-evolution of information processing – data, information, language and communication.

Computer arithmetic and number system. ASCII & EBCDIC character sets.

Elements of a Computer processing system – hardware, software, firmware – Computer capabilities and limitations. Concept of files and directories.

Hardware features and use- CPU. I/O devices, Storage devices and media. Block diagram of computer and functions of each block.

Introduction to networking, multiprocessing, time sharing, multitasking and real time computing. Concepts of LAN and Internet and WWW.

Variety of hardware system and features, Various types of Computers available in market. Micro, Mini and Main frames, supercomputers.

Concepts of data, information, Difference between data & information, information processing cycle, storage and retrieval of data.

Paper II: Operating Systems concepts and office tools WORD processing & slide presentation.
Part A (50)

Introduction to various categories of software's. Operating system and its functions. Interaction of operating system with hardware and user programs.

O.S. as resource manager, processor management, job scheduling, simple user, multi user, multi programming and time sharing concepts. Concepts of priorities, protection device management, spooling, deadlocks, memory management, file structures, command interpreter.

Case study of windows O.S.: An overview of windows interface, Managing files by windows explorer and My Computer. Accessories, Control panel, working with disk and drives, Backup data, Installing and managing applications.

Part B (25)

MS-Word: An overview, creating & Editing documents, formatting documents, tables, use of drawing tools, columns etc.

MS- PowerPoint: PowerPoint Basics, creating different types of presentations, special effects, slide show.

Paper III: Business Data Processing:

Introduction to data processing, records & file data collection, preparation, verification, editing and checking.

Overview of business functions. Use of Computer system for business applications.

Spread sheets Macros. Use of Computer System for business applications.

Business files Introduction to data structures Elements fields and Records. Classification of files. Master files Transaction files.

Distributed processing. Various facilities for business computing Introduction to databases.

Financial Accounting.

Paper IV : *Practical :*

Windows O.S. at per paper II. Use of MS-word, MS-Excel & Ms-Access, MS-Power Point.

Visit to Computer lab. Introduction to various Components of a Computer. A simple documentation preparation and printing. Usage of printer and other components. Rooting.

Analysis of a business system on paper.

Using spread sheet for payroll, balance sheets and other business applications. Design of packages using spreadsheet macros. Use of a Financial Accounting package.

Paper VI	: Introduction to Programming using C.	F. M.	:	75
Paper VII	: Introduction to Desk Top Publishing.	F. M.	:	75
Paper VIII	: Introduction to Networking and Internet.	F. M.	:	75
Paper IX	: Practical.	F. M.	:	50
Continuing Evaluation	: Industrial Lecture.	F. M.	:	25
		TOTAL	:	300

Detailed Syllabus

Paper VI : Introduction to Programming using C

Introduction to programming -	Algorithms, necessary features of algorithm, Flowcharts, simple examples.
Introduction to C programming -	Structure of a C program, Header files, C character set, delimiters, keywords, constants, variables, rules for defining variables, simple data types, declaring-initializing-using variables, data type conversion, constant and volatile variables.
Operators and Expressions -	Arithmetic, Relational, Logical, Comma and Conditional operators, priority of operators.
Input/Output -	Formatted and Unformatted I/O functions.
Decision Statements -	if-then-else, nested if, break, continue, goto, switch, nested switch statements.
Loop Control Statements -	for, nested for, while, do-while loops.
Arrays -	Definition and characteristics of array, one-dimensional array, predefined streams, two-dimensional array, sscanf() and sprintf() functions, simple programs using arrays including bubble sort and binary search.
Strings -	Declaration and Initialization, Display in different formats, String Standard functions, Application of strings.
Functions -	Declaration, Definition, the return statement, recursion, simple examples.

Paper VII : Introduction to Desk Top Publishing

Introduction to DTP -	Preliminary idea of DTP related terms, texts and graphics formats, difference between drawing and image, image storage formats – bmp, gif, tiff, jpg/jpeg etc.
Adobe PageMaker Basics -	PageMaker Work Environment, Preferences, Menus, Toolbox, Palettes, Converting Documents from Other Programs, Saving and Closing a Document, Document Pages, Master Pages, Printing a Document.
Working with Text -	Using Text in PageMaker, Importing Text, Text Frames, Story Editor, Character Formatting, Paragraph Formatting, Type Utilities, Working with Styles, Editing Existing Styles, Working with Tables.
Working with Objects -	Rectangles and Ellipses, Polygons, Manipulating Objects, Filling and Stroking Objects.
Working with Color -	Colors Palette, Adding a New Color, Editing and Deleting Colors, Checking Color for Printing, Trapping.
Working with Images and Graphics -	Image/Graphic File Formats, Image Resolution, Placing Images, Modifying Images and Graphics, Working with Frames, Text Wrap, Image Masks.

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Exporting as HTML and PDF Files -	Creating HTML Pages, Creating Hyperlinks, Export Options, Exporting Pages, Exporting PDF Files.
Basics of CorelDraw -	Menus, Large Menus and Dialog Boxes, Toolbars, Property Bar, Status Bar, Toolbox, Zoom Tool - zooming in and zooming out, Pan Tool, Viewing a Document, Desktop Power Tools. Starting a New Document, Opening an Existing Document, Saving, Importing and Exporting a File.
Rectangles and Ellipses -	Paths-Objects-Properties, Drawing Rectangles, Rounding the Corners of a Rectangle, Creating an Ellipse, Changing an Ellipse to a Pie Shape or Arc.
Select, Move, and Size -	Selecting and Deselecting Objects, Marquee Select, Moving an Object, Copying and Pasting an Object, Cloning an Object, Copying/Moving an Object between Documents, Handles and Scaling, Changing an Object's Dimensions.
Polygons, Stars, and Spirals -	Creating a Polygon, Drawing a Star, Creating a Polygon as Star, Creating a Symmetrical Spiral, Drawing a Logarithmic Spiral.
Nodes and Paths -	Adding-Deleting-Joining-Converting-Using different types of nodes.
Lines and Curves -	Freehand Tool, Bezier Tool, Knife Tool, Eraser Tool, Artistic Media Tool.
Color and Fills -	Closing an Object's Path, Filling with Uniform Color, Changing the Outline Color, Eyedropper Tool, Paintbucket Tool, Interactive Mesh Fill Tool.
Working with Text -	Add Artistic Text and Paragraph Text, Using Handles, Formatting Text, Flow Text between Paragraph Text Frames, Flow Paragraph Text onto a Path and into an Object, Make Text Flow around an Object, Rotate Text, Free Skew Tool, Interactive Drop Shadow Tool, Vector Extrusions.

Paper VIII : Introduction to Networking and Internet

Introduction to Networking -	Definition, Objectives of Networking, Categories of Networks : LAN, MAN, WAN and the Internet, Preliminary ideas of Protocols and Standards, Network Topologies, Transport Technology : Message-switched, Circuit-switched, and Packet-switched Networks, Components required for a minimum LAN set-up (definitions and functions only), Definitions of Hub, Repeater, Switch, Router, Gateway, Bridge, Modem.
Introduction to Internet -	Services offered by the Internet – E-mail, Gopher, WWW, Telnet, FTP, Newsgroups, Video Conferencing, Internet Relay Chat etc., Browser, URL, ISP and On-Line Service, Types of Internet Connections : Dial-up, ISDN, ADSL, Leased Line. HTTP and HTML.
Introduction to HTML -	HTML features, HTML Standards, Tools Required, The Basic HTML Tags, Break Tags, Headings.
Text Alignment, and Lists -	Text Alignment and Justification, Nesting Tags, Indenting, Block quote, Hexadecimal Color, Blinking Text, Font Tags, Horizontal Rules, Paragraph and Heading Alignment, Lists.
Graphic and Images -	Image Tags, Graphic File Formats, Background Patterns, The Alternative Attribute, Alignment, Image Size, Graphic Images as Links, Thumbnails, Image Maps : Purpose, Server-Side Image maps, Client-Side Image maps, Overlapping Images.
Links and Webs -	Hypertext Basics, Referencing Documents: The URL, Creating Hyperlinks, Creating Effective Links, Creating Searchable Documents.
Tables -	Description of Tables, TABLE Tags, Table Header Tags, Table Data Tags, Table BORDER Attributes, CAPTIONS Tag, Alignment, Column Span and Row Span, Formatting Border and Cells, Nesting Tables.
Frames -	Creating Frames, FRAMESET, Rows and Columns, FRAME Tag, NOFRAMES, Constructing a Frame Page.

Paper IX : Practical

All the practical problems related to Papers VI, VII and VIII.

Continuing Evaluation : Industrial Lecture

At least two experts from the industries will be invited by the concerned college/institution for delivering lectures regarding the ongoing software development in industries. At the end of the lectures, the students will be evaluated based on participation jointly by the invited expert and one subject teacher (Marks to be sent to the Controller of Examinations before the commencement of the theory examinations).

ADVANCED DIPLOMA

Paper XI: Introduction to Object Oriented Programming with Java   F.M.: 75

Paper XII: Introduction to Multimedia   F. M.: 75

     ✓ Photo: Adobe Photoshop : F.M.: 25
     ✓ Audio: Cakewalk Pro Audio:F.M.: 25
     ✓ Video: Adobe Premier: F.M. : 25

Paper XIII: Introduction to Dynamic Web page Design   F.M.: 75

Paper XIV: Practical (Based on papers XI, XII & XIII)   F.M.: 50

Paper XV: Project   F.M.: 75

                Total :   350

Detailed Syllabus

Paper XI: **Introduction to Object Oriented Programming with Java (75 marks)**

Objects, classes, Encapsulation, Inheritance, Polymorphism. Introduction to Java – object oriented, platform independence, internet language. Data types, variables, arrays, operators, control statements.

Introduction to Classes, class fundamentals, methods, constructors. Packages and interfaces, system packages, user-defined packages, multithreading, exception handling, string handling.

Introduction to applets, applet class, AWT, Windows, graphics and text, AWT controls. Image fundamentals, Networking with Java.

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Paper XII : Introduction to Multimedia (75 marks)

A. Introduction to Adobe Photoshop **25 marks**	Toolbox – various tools, hidden tools. Using Navigator, Colour, History, Layers. Using rulers, measure tool, guides and the grid. Creating, opening and importing images, changing size and resolution, duplicating images. Difference between bitmap images and vector graphics. Image – mode, brightness/contrast and colour adjustments. Working with colours – basic ideas only. Drawing and editing – using shape tools, pen tools, path palettes. Painting – using painting tools. Erasing, gradient and paint bucket tools. Foreground and background colours. Working with Layers –basic ideas only. Saving, printing and exporting images.
B. Introduction to Cakewalk Pro Audio **25 marks**	Computer sound and music, sound file formats – WAV, MP3, WMA. MIDI and Digital audio, MIDI channels, patches and instruments. Cakewalk Pro Audio – screen layout. Toolbars – standard, transport, tempo, loop. Views – track view, audio view, piano roll. Opening a project file, playing the song, restarting the song. Creating MIDI and audio tracks, track properties. Using piano roll to write music. MIDI and audio clips, measures-beats-ticks, selecting clips – whole and partial. Snap grid, splitting and combining clips, adjusting tempos. Recording new tracks, Mixing – volume and pan envelops, mix-down audio. Saving project - .wrk and .bun files.
C. Introduction to Adobe Premiere **25 marks**	Work area – project, timeline and monitor windows. Capturing and importing video clips, analog and digital video, basic idea of a capture card. Basic editing – adding clips to the timeline, developing a storyboard, trimming and fine-tuning clips in the timeline, previewing the rough cut, using still images. Adding transitions – inserting a transition, changing transitions, adding multiple transitions. Adding audio – importing and organizing audio clips, overlaying video with sound, adjusting audio levels in the timeline. Video and audio effects – preliminary idea. Rendering – exporting the movie, file formats – MPEG, AVI, WMV and .dat formats.

Paper XIII: Introduction to Dynamic Web design (75 marks)

Browsers – Internet Explorer vs. Netscape Navigator; HTML, DHTML, Style Sheet, Document Object Model(DOM), Web Accessibility Initiative(WAI) – basic concepts.

Adding Style Sheets to Documents – understanding block-level elements, two types of containment, style attributes.

Adding dynamic positioning to documents - creating positionable elements, absolute vs. relative positioning, positioning attributes, clip attribute, overflow attribute, visibility attribute, flying objects.

Making content dynamic - writing variable content, frames, image swapping, dynamic tables.

Scripting events – event types, event objects, event propagation.

Paper XIV: Practical (Based on papers XI, XII & XIII) (50 marks)

Paper XIV: Project (75 marks)