

6: COMPUTER TECHNOLOGY (X4, X5, X6)

Scheme of Examination

Std. XI

Paper	Title of the Paper	Theory		Practical		Term work	Project work	I.V.*	Total Marks
		Marks	Time (Hrs)	Marks	Time (Hrs)				
1	Office Automation	80	3	80	3	20	10	10	200
2	Desktop Publishing	80	3	80	3	20	10	10	200
3	Computer Hardware & Networking	80	3	80	3	20	10	10	200

* IV = Industrial Visits

Std. XII

Paper	Title of the Paper	Theory		Practical		Term work	Project work	I.V.*	OJT**	Total Marks
		Marks	Time (Hrs)	Marks	Time (Hrs)					
1	Web Page Designing	80	3	80	3	10	10	10	10	200
2	Database System	80	3	80	3	10	10	10	10	200
3	Multimedia and Animation	80	3	80	3	10	10	10	10	200

* IV = Industrial Visits

** OJT = On Job Training

Introduction

Computer Technology covers almost every aspect of our daily lives from business to leisure. In this era of globalization it is necessary to have adequate skills in computer techniques.

The syllabus of Computer Technology has been evolved in such a way that after completion of the course of two years (Std. 11th and 12th), the student would acquire good working skills suited to work as an IT person.

He/she would also gain confidence to work as DTP operator, Hardware and Networking Technician and also Web Designer etc.

Objectives:

- To make the student computer literate.
- To make him/her familiar with Internet techniques.
- To make him/her aware about basic hardware aspects of computer, telecommunication and other devices.

➤ **Specific objectives:**

Wage employment and self employment opportunities:

1. Data Entry operator
2. DTP operator
3. Hardware & Networking Technician
4. Assistance of Database Administrator
5. Web Designer
6. Animator

Std. XI
Paper I: Office Automation (X4)
Theory

Sr. No.	Unit	Sub Unit	Periods
1.	Introduction to Computer	1.1 Basic Anatomy: 1.1.1. Characteristics of Computer 1.1.2. Classification of Computer 1.1.3. Generation of Computer 1.1.4. Data Representation	03
2.	Operating System	2.1 Concept, Definition, Need 2.2 Overview of O.S 2.2.1. Feature of O.S 2.2.2. Types of O.S 2.2.3. Windows XP 2.2.4. Windows 7 and 8 2.2.5. LINUX	07
3.	Advanced Office Suite	3.1 Word Processing 3.1.1. Creating Hyperlink Text 3.1.2. Inserting water mark 3.1.3. Importing files in other format 3.1.4. Creating symbolic shortcuts 3.1.5. Saving as a PDF 3.2 Spreadsheet 3.2.1. Get external data from webpage 3.2.2. Connect to (Import) external data from databases 3.2.3. Import Text (.txt or .csv) files 3.2.4. Creation Macros 3.2.5. Study of Pivot Table 3.3 Presentation 3.3.1. Combine shape tools 3.3.2. Use of picture crop 3.3.3. Save presentation as Video 3.3.4. Study of photo album	20
4.	Accounting Software	4.1. Introduction to Accounts 4.2. Advantages of computerized accounting 4.3. Introduction to Tally/Wings accounting/ Hisab/ Marg/ Gnucash/Busy and its features(any one) 4.4. Creation and configuration company menus	80

		related to Accounts 4.5. Creating, Displaying and Altering Groups 4.6. Creating, Displaying and Altering Ledgers 4.7. Voucher Entries 4.8. Displaying Trial Balance, Profit and Loss Account and Balance Sheet 4.9. Cost center	
5.	Internet	5.1. Internet Overview 5.1.1. WWW 5.1.2. Web server - Roll of Web Server and Client 5.1.3. Browsers - Internet Explorer, Mozilla Firefox 5.1.4. E-Mail 5.1.5. Messengers - Service and client and their features 5.2. Internet application 5.2.1. Reservation system 5.2.2. Online Banking 5.2.3. Online Shopping 5.2.4. Online Share trading	10
		Total	120

Practical

Sr. No.	Unit	Sub Unit	Periods
1.	Introduction to Computer	1) Familiarization with Different operating system.	06
2.	Operating System	2) Study of installation any one operating system. 3) Study of control panel.	04 10
3.	Advance Office Suite	Word Processing 4) Create a Word document with link, Insert image with properties. 5) Create a word document with table & charts. 6) Demonstration of Hyperlink file, saving as PDF, Inserting water mark. 7) Demonstration on importing file in other format and creating symbolic shortcuts. Excel /Spreadsheet 8) Demonstration on macros. 9) Create an Excel workbook with two sheets using pivot table (using arithmetic or	25

		<p>1.2. Document Planning</p> <p>1.2.1. Creating and Using thumbnail sketches</p> <p>1.2.2. Setting Margins, establishing layout with grids, master pages, columns, typeface, type stiles, fonts, heading and sub-heads leading</p> <p>1.3. Pre-Press designing and production techniques.</p> <p>1.4. Book Binding techniques (for Printing Margin setup)</p>	
2.	Adobe Indesign	<p>2.1 Document Setup and Working Environment- Toolbox, Ruler Guides, Zooming and Scrolling,</p> <p>2.2 Creating Frames, Moving Objects, Selection Techniques- Control and Transform Panels, Lines, Manually Resizing Objects,</p> <p>2.3 Working with Text- Entering Editing and Importing Text, Highlighting and threading Text, Understanding Text Threads, Story Editor, Glyphs, Special Characters and White Space, Text Frame Options – Columns, Text Frame Insets & Vertical Alignment</p> <p>2.4 Character Settings- Font, Size, Style, Leading, Kerning and Tracking, Horizontal and Vertical Scale, Baseline Shift and Slanted Text</p> <p>2.5 Paragraph Settings- Indents, Space Before/Space After, Alignment, Drop Caps, Aligning to a Baseline Grid, Hyphenation, Keep Options and Breaks, Text Composers, Paragraph Rules, Bullet Points and Lists, Paragraph Styles, Character Styles , Applying and Editing Styles</p> <p>2.6 Working with Images Indesign Placing an Image, Image Fitting Options, Scaling and Cropping Images</p> <p>2.7 The Pages Panel- Inserting and Deleting Pages, Repositioning Document Pages, setting adding and deleting Master Pages, Auto page numbering</p> <p>2.8 Working with tables- adding and deleting rows and columns. Resizing Columns and Rows, Entering Content</p> <p>2.9 Exporting to PDF</p>	20
3.	CorelDraw	<p>3.1 Introduction to CorelDraw</p> <p>3.2 Tools and menus</p> <p>3.2.1. Use of various tools such as pick tools, zoom tools, freehand tool, square tool, Rectangle tool text tool, fill tool etc. and all fonts used in design in monograms, logos, posters, stickers, greeting cards, wedding cards, visiting cards.</p> <p>3.2.2. Creating different types of drawings.</p> <p>3.3. Basic drawing working with text-basic</p> <p>3.4. Unit and Measurements (Pica, points, millimeters,</p>	30

		centimeters etc) 3.5 Page Layout 3.6 Color schemes and matching 3.7. News Papers layout (global standards) 3.8 Printing.	
4.	Basic Photoshop	4.1Image Fundamentals: - 4.1.1 Digital image pixel. 4.1.2. Resolution. 4.1.3 DPL, 4.1.4 Raster image/bitmaps. 4.1.5 Vector image/graphics. 4.2. Various File Format:- 4.3.Understanding Various Tools:- 4.3.1 Marquee- Rectangular/Elliptical. 4.3.2 Move Lasso, Polygonal Lasso, Magnetic Lasso, 4.3.3 Magic wand. 4.3.4 Brushes and other tools 4.3.5 Selection Techniques 4.3.5 Tools	35
5.	Advance Photoshop	5.1. Understanding various Palettes:- 5.1.1 Layers. 5.2. Character Text and Paragraph formatting 5.3. Status Bar and Option Bar. 5.4. Modes. 5.5. Image Display Options 5.6.. Edit Commands:- 5.6.1 Transform Preferences, Define Brush etc. 5.7. Image Commands Inverse.	25

		5.8. Image Processing, Layers and Filtering effects 5.9. View Commands. 5.10. Print Option.	
		Total	120

Note:

After completion of HSC vocational course (Computer Technology) most of the students do not continue their education they are interested in job or self employment so that they must know these professional softwares during the course.

Practical

Sr. No.	Unit	Sub Unit	Periods
1.	Desktop Publishing	1. Study of various Book Binding Techniques	20
2.	Adobe Indesign	2. InDesign - use of tool box and creation of simple letterhead or identity card of your institute 3. InDesign – Design of a commercial color newspaper ad related to the exhibition of educational books in the size 2 columns x 10 cm. 4. Conversion of an Adobe InDesign Document into PDF (with and without Images)	40
3.	CorelDraw	5. Study of Units and Measurements in CorelDraw. 6. Study of Various tools used in CorelDraw 7. Page Layout and Design according to a sample newspaper in CorelDraw. 8. Graphic Import from different formats and Export to different formats in CorelDraw. 9. Text Wrap techniques around graphics.	65
4.	Basic Photoshop	10. Know the difference between Vector Graphics and Raster Graphics	65

		<p>11. Screen Graphics and Pixel Graphics.</p> <p>12. Understand the following formats :- .ai, .pdf, .eps, .svg, .svgz, .psd, .bmp, .gif, .jpg, .pcx, .pct, .png, .raw, .sct, .tga, .tiff, .vst.</p> <p>13. Working with Images in Photoshop. Working with Palettes, i.e., layers palette, navigator palette, info palette, color palette, Swatches palette, Styles palette, History palette, Actions Palette, Tool preset palette, Channels Palette and Path Palette.</p>	
5.	Advanced Photoshop	<p>14. Working with Layers. Photo editing. Image adjustment options – Labels, Auto labels, Auto contrasts, Curves, Color balance, Brightness / Contrast, Posterize, Variations.</p> <p>15. Working with the magic wand tool, lasso tool and Symbol Sprayer Tool. Edit the images using options of Warp Tool. Using Dodge tool, Burn tool, Sponge Tool and Clone Stamp Tool.</p> <p>16. Creating images and giving special effects using Filters.</p> <p>17. Using Layer Styles - Produce an image by mixing two or more different images using Layer Masking & Vector Masking.</p>	50
		Total	240

Paper III: Computer Hardware and Networking (X6) Theory

Sr. No.	Unit	Sub Unit	Periods
1.	Basic	<p>1.1. Basic Electronic components</p> <p>1.1.1. Significance of current, voltage, power,</p>	10

	Electronic components and Devices	<p>resistance and capacitors, diode, LED and transistors.</p> <p>1.2. Input/ output Devices</p> <p>1.2.1. Input Devices</p> <p>1.2.2. Output Devices</p> <p>1.3. Storage Devices:</p> <p>1.3.1. Secondary Memory Installation and configurations</p> <p>1.4. Introduction of cards:</p> <p>1.4.1. Types of External Cards</p> <p>1.4.2. Modem</p> <p>1.5. Memory</p> <p>1.5.1. Types of memories</p>	
2.	Microprocessor Processors and Architecture	<p>2.1. Types of processors.</p> <p>2.1.1 Architecture of 8085</p> <p>2.1.2. Introduction to 8086</p> <p>2.1.3. SCSI interface, serial (COM)ports, parallel (LTP) ports</p> <p>2.1.4. USB connector, keyboard and PS/2, connector, CD, DVD</p> <p>2.2. Motherboard and its installation</p> <p>2.3. Power supply and its installation</p>	15
3.	PC Servicing and maintenance	<p>3.1 Assembling and Dismantling of PC</p> <p>3.2. Troubleshooting of various input, output and storage devices,</p> <p>3.3. Software installation and virus protection</p> <p>3.4 preventive maintenance</p> <p>3.5. Types of backup, fine tuning the system.</p>	25
4.	Networking and	4.1. Introduction to networking	65

	Communication	4.2. Types of network 4.3. Types of communication 4.4. Modes of communication 4.5. Network Component 4.6 Access Method 4.7. Network Architecture 4.8. Network Topology 4.9. Ethernet 4.10. Network Operating System 4.11. VPN and IPV6 4.12. Wired and Wireless Transmission Media 4.13. Threats & prevention from viruses, worms 4.14. Hacking 4.15. Proxy server 4.16. Types of Server 4.17. Network Protocol 4.18. Network Troubleshooting	
5.	Cyber Laws and Ethics	5.1. Moral, ethics & laws 5.2. Ethics culture & ethics for computer user computer professional , business 5.3. Code and guide lines of ethics. 5.4. Introduction to cyber laws 5.5. Intellectual property rights 5.6. IT act(amendment 2008)	05
		Total	120

Practical

Sr. No.	Unit	Sub Unit	Periods
1.	Basic Electronic components and Devices	<p>1. Identification (type, value, package, polarity) and testing of resistors, capacitors, diodes, transistors/ LED</p> <p>2. Familiarization with different parts of Computer.</p> <p>3. Installation of device drivers like printer, modem, scanner etc.</p>	45
2.	Microprocessor Processors and Architecture	<p>4. Assembling and Dismantling of Computer.</p> <p>5. Formatting and Installation of different Operating Systems and other application software.</p> <p>6. Fault finding and rectifying it.</p>	35
3.	PC Servicing and maintenance	<p>7. Preventive Maintenance of Computer System.</p> <p>8. Setting up a NIC (Network Interface Card) and assigning IP address and subnet</p> <p>9. Defining a Domain Model on Windows Servers.</p>	60
4.	Networking and Communication	<p>10. Setting up a Workgroup based network.</p> <p>11. Setting up user level hierarchy with different security levels.</p> <p>12. Sharing a Printer on the network for printing over the LAN.</p> <p>13. Sharing different resources, files and folders with rights to specific users in a Domain Model.</p> <p>14. Creation of various websites on a single Web Server and changing the Home Directory (WWW) of a IIS server.</p>	100

		<p>15. Configuration of a Proxy Server for Internet Connection Sharing with Restricted Access.</p> <p>16. Configuration of a wireless network.</p> <p>17. Installation of Antivirus Software</p> <p>18. Creation of different users grant permissions to user.</p> <p>19. Installing firewall security.</p> <p>20. Installation of File server, Print server, Mail server etc.</p> <p>21. Demonstrate the use of different Networking protocols</p> <p>22. Demonstrate the process of network troubleshooting</p>	
5.	Cyber Laws and Ethics	-	
		Total	240

Std. XII
Paper I: Web Page Designing (X4)
Theory

Sr. No.	Unit	Sub Unit	Periods
1.	HTML	<p>1.1 Introduction of HTML</p> <p>1.2 HTML Basic Tags and Attributes</p> <p>1.3 Hyperlinks</p> <p>1.4 Physical Style Tags</p> <p>1.5 Images</p> <p>1.6 Tables and Lists</p> <p>1.7 Multimedia Objects</p>	20
2.	Advanced HTML	<p>2.1 Frames</p> <p>2.2 Forms</p>	30

		2.3 Image Mapping 2.4 Embedding Multimedia 2.5 Applets 2.6 Web Server 2.7 Browsers 2.8 CSS- Cascading Style Sheet	
3.	Macromedia Dreamweaver	3.1 Introduction to Dreamweaver 3.2 Exploring the basic interface 3.3 Formatting 3.4 Using Property Inspector 3.5 Using Object Panel 3.6 Working with Web Page files 3.7 Creating Hyperlink, Tables and frames	30
4.	Introduction to JavaScript	4.1 Limitation of plain HTML 4.2 Difference between Java and JavaScript 4.3 Variables and Operators 4.4 Selection and Iteration 4.5 HTML Program using JavaScript 4.6 JavaScript Programs	40
		Total	120

Practical

Sr. No.	Unit	Sub Unit	Periods
1.	HTML	1. Study of HTML tags 2. Creating A simple Web page and saving the same 3. Use of various text formatting options Heading and paragraph with alignment 4. Physical style, font type, color and size,	80

		<p>bold, italic, underline, superscript and subscript</p> <p>5. List ordered, unordered and nested, paragraph indenting</p> <p>6. Insertion of hyperlink and bookmark, hyperlink properties</p> <p>7. Image insertion formatting and image properties</p> <p>8. Creation of tables with various border formatting</p> <p>9. Page property setting title, background sound etc.</p>	
2.	Advanced HTML	<p>10. Header, footers, page no, section break</p> <p>11. Creation of HTML forms and related objects</p> <p>12. Frames and working with frames</p> <p>13. Design a web page using CSS</p> <p>14. Use of buttons, labels, text box</p>	60
3.	Macromedia Dreamweaver	<p>15. Study of Dreamweaver environment</p> <p>16. Creating a simple website using text, graphics, sound</p>	40
4.	Introduction to JavaScript	<p>17. Use of control structures</p> <p>18. Write a program to display message on the screen using JAVA script</p> <p>19. Mathematical calculation using JAVA</p> <p>20. Program using control structure and looping structure</p>	60
		Total	240

Paper II: Database System (X5)

Theory

Sr. No.	Unit	Sub Unit	Periods
1.	Database Concepts	<p>1.1 Introduction to database</p> <p>1.2 Database Components</p> <p>1.3 Differences between database and spreadsheet</p> <p>1.4 Database Management System</p>	20
2.	Introduction to RDBMS	2.1 Introduction of DBMS and RDBMS	35

		2.2 Shortcoming 2.3 Benefits of Database 2.4 The Database Management System 2.5 The Database Administrator 2.6 Database Users	
3.	Introduction to MS-ACCESS	3.1 Introduction 3.2 Database Terminologies 3.3 Data Types in Ms-Access 3.4 Rules for Field Name 3.5 Creating a simple database 3.6 Viewing and Editing Data 3.7 Relationships 3.8 Utilities in Access 3.9 Querying Database 3.10 Report in Access	35
4.	Database in Network Environment	4.1 Operating system 4.2 Client Server application 4.3 ODBC DSN 4.4 Introduction to SQL	30
		Total	120

Note:

After completion of HSC vocational course (Computer Technology) most of the students do not continue their education they are interested in job or self employment. So that they must know these professional software during the course.

Practical

Sr. No.	Unit	Sub Unit	Periods
1.	Database concept	1. Create a database to store records of students performance in std. XI	60

		2. Create an appropriate form to fill data into a database in practical 1 3. Write an appropriate query to display records of database in practical 1 in various order	
2.	Introduction to RDBMS	4. Copy one table form a database to another database with/ without data	40
3.	Introduction to MS-Access	5. Import different file of different formats into an Access database 6. Export an Access database to different files of different format 7. Create a multiplex database with tables representing carrier records of cricketers. Use relationship to access identity in both tables (Separate tables for batting, bowling, fielding) 8. Study of compact feature on a sample database and comparison with the original 9. Application of password and encryption to a database	80
4.	Database in Network Environment	10. Create and ODBC DSN for Access database to use the same over a network	60
		Total	240

Paper III: Multimedia and Animation (X6) Theory

Sr. No.	Unit	Sub Unit	Periods
1.	Multimedia Objects	1.1 Image Formats 1.2 Audio formats 1.3 Video Formats	10
2.	Presentation Techniques	2.1 Creation of presentation 2.2 Animation for presentation 2.3 Animation techniques.	10
3.	Macromedia FLASH	3.1 Introduction 3.2 Basic functions 3.3 Creating objects	30

		3.4 Editing objects 3.5 Frames and layers 3.6 Bitmaps and sound 3.7 Animation	
4.	Macromedia Director	4.1 Introduction 4.2 Cast 4.3 Working with Cast 4.4 Files and their types 4.5 Shortcuts, menus and toolbar 4.6 Director scripting 4.7 Working with message 4.8 Stage and score 4.9 Scripts 4.10 Creating interactivity 4.11 Editing media 4.12 Creating movies	30
5.	2D & 3D animation	5.1 Definition 5.2 Basic Animation 5.3 Introduction 5.4 Drawing 5.5 Coloring 5.6 Color schemes 5.7 Texturing	40
		Total	120

Practical

Sr. No.	Unit	Sub Unit	Periods
1.	Multimedia Objects	1. Demonstration of Image, Audio, Video formats 2. Conversion of Image, Audio, Video format	10
2.	Presentation Techniques	3. Presentation with sound effect 4. Presentation with video clips 5. Study of selection of appropriate format of a file (Graphics, sound, animation for web application) 6. Simple project on multimedia presentation	20
3.	Macromedia Flash	7. Study of layers in flash 8. Study of time line in flash 9. Study of transition / background in flash 10. Simple presentation using flash 11. Study of Flash plug-ins	60
4.	Macromedia Director	12. Study of Director Environment 13. Study of cast and a score 14. Design a web page embedding Audio and Video effect	60
5.	2D &3D animation	15. Demonstration of various basic tools used in 2D &3D animation 16. Drawing lines, 2D &3D shapes, object drawing, cartoon drawing 17. Simple animation with GIF animator 18. Coloring - color wheel, primary, secondary and tertiary colors 19. Texturing – visual and feel textures 20. Creation of movie clip as a mini project	90
		Total	240

REFERENCE BOOKS

Book Name	Author	Publisher
Fundamentals of Microprocessors and Micro Computers	B. RAM	Dhanpat Rai Publications
Microprocessor Architecture, Programming and Applications with	Ramesh S. Gaonkar	Penram International

the 8085		Publishing
Networking	Steve Rackley	DreamTech Press
Networking A Beginners guide	Bruce A. Hallberg	Tata McGraw Hill Edition
Operating Systems	J. Archer Harris	Schaum's Outlines
Internet an Introduction	Manish Dixit	Tata McGraw Hill Series
Multimedia Technology and Applications	David Hillman Ashok Banerji Anand Mohan Ghosh	Galgotia Publications Tata McGraw Hill
Multimedia Making it Work	Tay Vaughan	Tata McGraw Hill
Web Publishing	Monica D 'souza Jude D'souza	Tata McGraw Hill Publishing company Ltd
Web Page Design	Brian Austin	DreamTech Press
Working in Microsoft Office	Ron Mansfield	C-DAC-Tata McGraw Hill series
CorelDraw in easy steps	Stepen Copestake	DreamTech Press
CorelDraw in Simple steps	Kogent Solutions Inc.	DreamTech Press
Photoshop [for Windows and Mac] in easy steps	Robert Shufflebotham	DreamTech Press
Dreamweaver	Nick Vandome	DreamTech Press
Flash	Nick Vandome	DreamTech Press
Data Structures	Seymour Lipschutz	Schaum's Outlines Series
Concepts of Database Management	Philip J. Pratt Joseph J. Adamski	Vikas Publishing House
Tally 9	A.K.Nadhani,	BPB Publishing

	K.K.Nadhani	Company
Tally 9 in simple steps	Kogent Solutions INC	DreamTech
JavaScript in 24 hours	Michael Moncur	Techmedia

List of Tools and Equipments for XI and XII

1. Space Requirement - Classroom 400 sq.ft. (01 No.)

Computer Lab 800 sq.ft. (01 No.)

2. Power Supply -3 Phase 5 K.W.

4. List of Tools and Equipment- (for a batch of 30 students)

- i. Online UPS for computer lab.
- ii. Server for networking with latest configuration-01 No.
- iii. Workstations / nodes with latest configuration and multimedia facilities.-30 No.
- iv. Laptop- 02 no.
- v. Inkjet and Laser Printer: - 01 each
- vi. Scanner – 01
- vii. Speakers, Head Phone, Web Camera -02 each
- viii. Old computers for assembling and disassembling.
- ix. Consumables for hardware and networking -as required.
- x. Furniture - Vacuum cleaner, Computer tables and chairs, cupboard.

5. Software -Essential open source software as per the syllabus.