INFORMATION TECHNOLOGY (IT)

CERTIFICATE COURSE

Paper I - 4 credits

Unit 1- Introduction to Computers

Introduction to computers, uses of computers in modern society History of computers. architecture of computers, characteristics of computers-speed, accuracy, storage and versatility; Computer Languages-Evolution of languages, machine language. assemble and high level language, third, fourth and fifth generation languages; interfacing with computers- I/O devices; Storage devices-primary storage devices, secondary storage devices. 2 hrs

Unit II - Operating Systems & MS-Office

Operating System- Catcgories of OS, Functions of OS, Windows OS, MS-DOS. Linux. UNIX; MS-Office (Word, Exccl, Power Point. Access), Information Systems, Automated Office Functions. 13 hrs

Unit III - Introduction to Publishing

Introduction to Publishing - Print, Visual, Web; DTP, Word Processing, Page Layout Font, Typesetting and Layout, Softwares -Adobe Page Maker, Quark Express etc.; Image Processing, Understanding Color, Computer Graphics, Graphic Designing. Website Designing, Prepress Technology; Softwares- Adobe Photoshop, CoreI DRAW. Adohe InDesign, Macromedia Flash etc.

40hrs

Unit IV- Essentials of Printing Technology, Offset Printing techniques; AdvertISIng Industry, Industrial Techniques, Hardware requirements; Visual Media, Introduction to Animation - 2D and 3D. 5 hrs

Practical

File management in Windows, Creating and formatting a document, Spreadsheet handling with Excel, Presentation Packages, Internet etc.

References:

1. Peter Norton's Introduction to Computers, Sixth Edition, Tata Mc Graw Hill.
2. Fundamentals of Computers, V. Rajaraman, Prentice Hall ofIndia, New Delhi.
3. Computer Fundamentals, P.K. Sinha, BPB Publications, New Delhi.
4. Systems Programming and Operating Systems, D.M. Damdhere, Second Revised Edition. Tata MC Graw Hill
5. Operating System Principles, Seventh Edition, Abraham Silberschatz, Peter Galvin and Gagne, John Wi ley.
6. Windows 98, Users Guide and Reference.

Paper II – Object oriented programming and C++ 4 credits

Unit I -Introduction to object oriented concepts; C++ Programming basics, Loops and decisions, Structures, functions; Objects and Classes: Access specifiers- specifying the class, using the class, C++ objects as physical objects, objects as data types, constructors. destructors, Objects as function arguments, returning objects from functions. 12 hrs

Unit II - Arrays: arrays, arrays as class member data, arrays of objects, string, strings as class members. 6 hrs

Unit III - Inheritance: derived class and base class constructors, class hierarchies. private and public hierarchies, levels of inheritance, multiple inheritance, classes within classes. 8 hrs

Unit IV - Pointers in C++: memory management-new and delete, pointers to object. pointer to pointer, polymorphism-operator overloading -overloading unary operator. overloading binary operators. Function overloading, virtual functions and other subtleties. friend functions, assignment and copy-initialisation, this pointer. 13 hrs

Unit V - Files and Strings: streams, string *I/O*, character I/O, object I/O, I/O with multiple objects, file pointers, disk *VO* with member functions, redirection. 6 hrs

Unit VI - Introduction to VB: Introduction, VB developing environment, exploring the menu bar, using the tool box, elements of VB syntax, using literals, declaring and using constants, data types, d3eclaring and using variables, using the operators, subroutine and functions, looping and decision control structure, If/then/Else structure, select structure. For/next structure, Do loop structure, while/wend structure

References:

1. Object oriented programming in Microsoft C++ - Robert Lafore
2. A C++ premier- Stanley B Hippman
3. The C++ programming language- Bjarne Stroupstrup
4. Mastering Visual basic 6 - Evangelos Petroutsos

Paper III – Communicative English – 4 credits

Unit 1 - Meeting People --Greeting - Wishing Farewell - Expressing Gratitmk. Appreciation - Apologizing - Introducing Oneself - Introducing Others ...

Unit 2 - Importance Of Correct Utterance --Phonetics - Pronunciation - Accent Modulation

Unit 3 - How To Make A Statement -- Subject -Verb Order - Affirmative and Negative Sentences - Agreement Between Subject And Verb.

Unit 4 - How To Ask Questions? - Subject -Verb Order - Types of Questions Affirmative and Negative Questions.

Unit 5 - How To Make Requests? -- Give Orders or Commands - Subject -Verb Order Use of "Let with First and Third Person Subjects".

Unit 6 - Different ways of Stating Some thing - -When the Object Assumes Importance {Active and Passive].

Unit 7 - Speaking About Today's Activities --Stages of an Action Expressed in DitTerent Present Tense Forms.

Unit 8 - Speaking About Yesterday's and Tomorrow's Actions or states --Use of Past and Future Tense Forms.

Unit 9 - Auxiliaries and Their Common Uses in Speech Making.

Unit 10 - Meaning Modification -- Correct Use of Adverbs, Adverbials and Adverb Clauses.

Unit 11 - Reporting Statements -- Direct - Indirect Statements and Questions -Quoting Others.

Unit 12 - Making Suggestions, Polite Enquiries .... Granting Requests, Accepting and Rejecting Suggestions. Making Alternate Suggestions

Unit 13 - Speech Markers --Use of Link Words and Conjunctions

Unit 14 - Expressing Opinions, Necessity, Obligation, Intentions, Permission, Prohibition etc.

Unit 15 -Making Comparison --Contrast --Degrees of comparison --Intensifiers Adjectives -Articles.

Unit 16-Rules about the Use of Prepositions.

Unit 17 -Stylish Ways of Speaking --Special Vocabulary --Idioms -Proverbs -Unit 18 - Tips for Public Speaking -- Debates --Group Discussions.

Unit 19 - Tips for Formal Interviews.

Unit 20 - Tips for Formal Writing -- Drafting Letters, Applications, Resume.

The whole programme is activity based. Maximum speaking time is given to the participants. Grammar tips are given after each speaking session and specially designed situations and activities.

Presentations
Exercises

Paper IV – project/training 8 credits

DIPLOMA COURSE

Paper I – Programming with visual basic 4 credits

Unit I - Introduction, VB developing environment, exploring the menu bar, using the tool box, elements of VB syntax, using literals, declaring and using constants, data types. declaring and using variables, using the operators, subroutine and functions, looping and decision control structure, If/then/Else structure, select structure, For/next structure, Do loop structure, while/wend structure. 24 hrs

Unit II - Using intrinsic controls, pointer, label, frame, check box, combo box, scroll bar, timer, dir list box, shape, image, OLE, picture box, Text box, command button, option button, list box, adding check box controls, adding combo box, standard MDI form features, building the MDI form, using menus, building a wizard. 16 hrs

Unit III - Database programming, data view window, query designer, data repot designer, creating a data environment, adding queries to data environment, ADO-DAO connecting to the data base, adding records, editing records, closing the database connection. 20 hrs

Paper II – Operating system 4 credits

Unit-I
Fundamentals of OS-monitors, buffering, spooling, multi programming, operating system services 1 0 hrs

Unit-II Processes- States, management, scheduling, context switching, concurrent processes, CPU scheduling, algorithms 15 hrs

Unit-III Dead locks-characterization, prevention, detection, recovery 8 hrs

Unit-IV Memory management- partitioning, swapping, paging, segmentation, virtual memory, direct memory access 12 hrs

Unit-V File system- file concept, access methods, directory system, file protection methods 15 hrs

References:

1. Systems Programming and Operating Systems, D.M. Damdhere, Second Revised Edition, Tata MC Graw Hill
2. Operating System Principles, Seventh Edition, Abraham Silberschatz, Peter Galvin and Gagne, John Wiley.
3. Windows 98, Users Guide and Reference.

Paper III - Internet and web page designing

Unit I
Introduction to networks-types of networks-advantages, LAN, WAN, MAN 10 hrs

Unit II
Internet-services-addressing scheme, Machine addressing, mail address, resource addressing, TCP/IP, URL, MODEM 15 hrs

Unit III
Internet connectivity-setting up a connection-ISP-visiting a web site-e-mail attachments 10 hrs

Unit IV

Types of web sites-need for web sites, web pages, search engines scope of web designing, a good web site 10 hrs

Unit V

Introduction to HTML-Creating an HTML document-displaying and re using of HTML document, creating a sample web page 12 hrs

Unit VI -Recent trends and techniques in IT 3 hrs

Practicals:

Web page creation E-mail address creation Resource gathering

1. The Internet, Complete Reference, Harley Hahn, Tata McGraw Hill
2. HTML Complete Reference, Wiley Publications.
3. A Text Book on Computer Awareness and Applications, Gireesh Kumar, Prakash Publications.

Paper IV – Project and training - 8 credits

ADVANCED DIPLOMA COURSE

Paper I – Microprocessor 8085

Unit-I 8085 microprocessor-pin diagram, function, architecture, data address register, stack pointer 10 hrs

Unit-II Interfacing- Introduction, interfacing with ROM and RAM, Interfacing with input and output- I/O ports, synchronizing I/O data transfer using interrupts, address decoding 15 hrs

Unit-III

Programming- Machine and assemble language, instruction set, arithmetic operations, logical operations, data transfer, Branch operation, sub routine calls return operations, programming, branching, and looping 12 hrs

Unit-IV Programming techniques-straight line programs, looping programs, mathematical programs 8 hrs

Unit-V

Applications- traffic control, temperature control, digital clock, washing machine control 15 hrs

Practical:

Microprocessor programming using 8085 microprocessor kit.

R.S. Goankar, Microprocessor Architecture, Programming and Applications with 8085, Wiley Eastern Edition.

Paper II – Computer hardware fundamentals I - 4 credits

Unit-I System concepts, H/W, S/W, H/W components of a system 8 hrs

Unit-II Types of memory, RAM, ROM, Speed of memory, Cache memory, BIOS, CMOS 12hrs

Unit-III Mother board functions, Components of a mother board. 15 hrs

Unit-IV Storage devices, floppy, hard disk, CD ROM, DVD ROM. 1 0 hr

Unit-V

Hard disk components, Disk formatting, disc partitioning, hard disk components, hard disk installations etc. 15 hrs

Reference:

PC Hardware, BPB Publications.

Paper III – Computer hardware fundamentals – II - 4 credits

Unit-I

System Configurations, System Installations Unit-II

Installing peripherals.

Unit-III

Trouble shooting.

Unit-IV

Control organization, design of hardware control, and design of processor unit Unit-V

CRT Display, LCD, TFT, Printers, Scanners. Reference:

PC Hardware, BPB Publications.

Paper IV-On the Job Training and Project Report - 8 credits