2. Advance Certificate Course in Information Technology

Introduction:

In the modern world, information is power. Acquiring information, storing, updating, processing, sharing, distributing etc. are essentials of Information Technology. With the great speed of accessing, storing, reproducing, processing, computers have become a tool-incomparable. Computers have out-smarted all other equipment used for handling "Information". Advance Certificate Course in Information Technology is a one-year programme introduced by Board of Intermediate Education to impart the best of all software and information handling skills.

Objectives:

i. To develop professional competence in the use of computers.
ii. To generate self and wage employment
iii. To make aware of existing needs/ changing needs / emerging needs of the society.

Skills to be provided:

i. Skills in handling operating systems
ii. Electronic Data processing skills
iii. Internet browsing skills
iv. Skills in programming and Project development

Employment opportunities:

Wage:
1. Programmers in software companies
2. Processing In-charges
3. Sales assistant in E-market

Self:
1. Information service centres
2. Establishing DTP centres
3. Software development & EDP centres

Schemes Of Instruction Per Module

Module	Theory		On Job Training		Total	
	Hours	Weightage	Hours	Weightage	Hours	Weightage
I	72	30	216	70	288	100
Total	72	30	216	70	288	100

Schemes Of Instruction Per Week

Module	Theory	On the Job Training	Total
Modules I/II/III	6 Hours	18 Hours	24 Hours

Detailed Syllabus:

Module I: Computer Fundamentals and Electronic Data Processing

Sl.No.	Topics	Theory & On the Job Training
1.	Introduction to computers (4 Hours Theory)	Multipurpose tools, overview of computer system, looking inside system, software bringing the machine to life, comparison with typewriter and calculators, hardware and soft ware, benefits of computers, areas of computer applications,
2.	Classification and overview of computers (4 Hrs. Theory, 6 Hrs. Practical)	Block Diagram of computer, Functional Components of computers, History of computer development, Classification of computers: super, mini, main, desk top, palm top, and lap top computers, typical computer components such as keyboard, mouse, scanner, floppy disk, hard disk, CD Drive, CD- Writer, Barcode reader, microphone, web camera, digital camera, mother board, microprocessors, RAM, ROM chips, Speakers, monitors, printers, electronic signature pad
3.	Programming and software (8 Hrs. Theory)	Introduction to Programme writing, algorithms, flow charts, programme writing, system software, application software, programming languages, machine language, assembly language, high level languages, assembler, compiler, interpreter, syntax, logical errors, debugging, Typical computer languages such as: FORTRAN, C, Basic, Cobol, Object oriented languages: C++, Java, Comparison between C++ and Java
4.	Operating system concepts (8 Hrs. Theory, 24 Hrs. Practical)	What is an operating system, functionality of an operating system, typical operating systems such as DOS, Windows, Linux / Unix, comparison between these operating systems, basic terminology of operating systems such as multi tasking, multi-programming, DOS commands, features of Micro soft operating systems, working knowledge of Microsoft operating systems, Concepts of windows 2000-server.
5.	Internet concepts (16 Hrs. Theory, 48 Hrs. Practical)	Objectives, how the internet works, major features of internet, Accessing the internet, connecting PC to internet, Introduction to World wide web, Internet server concepts, study of Functionality of MS IIS, personal web server, http and ftp protocols, HTML scripts, Writing HTML pages which includes links, images, controls such as text box, combo-box, radio buttons etc., managing html frames.
6.	MS Office (32 Hrs. Theory, 138 Hrs. Practical)	**Ms- Word**: Word processing which includes creating tables, typical documents, OLE controls, formatting, spell checking, page properties, drawing elements, auto shapes etc., Converting word documents into web pages **Power point:** typical power point options for creating presentations, animation, e-learning features of power point, creating web pages for presentation using power point **MS Excel**: Creating spread sheets using excel. Features of excel for statistical, Financial Accounting. Inserting Excel components in other applications such as MS word, Power point **MS Front page:** Creating web pages using MS FrontPage. **Ms Access:** Database concepts, Creating and managing tables in MS Access

Module: II Programming Skills

Sl.No.	Topics	Theory & On the Job Training
1	**C and C++ programming** (20 Hrs. Theory, 72 Hrs. Practical)	Creating WIN 32 Console applications and procedure for writing a simple C programme, compiling and executing and debugging in VC++ environment, standard data types in C, difference between C and C++ in data declaration and scope of variables, , using C libraries, concept of Header and Source files, Control structures of C, Writing simple C programmes such as solving mathematical equations, computing maximum and minimum of n given numbers, finding roots of quadratic equations, programmes for computing mathematical series, Syntax, semantic and logical errors, runtime errors. Arrays in C, writing programmes for matrix operations, sorting n numbers,. Functions: functions and procedures in C, recursion, writing applications such as finding factorial n, permutations and combinations, parameter parsing, call by value, call by address and call by reference. Structures in C and C++, Applications using simple C and C++ structures.
2.	**Object oriented features of C++ (**20 Hrs. Theory, 72 Hrs. Practical)	Introduction to OOPs, Features of OOPs, creating classes in C++, Public, and Private protected functions and variables in C++, constructors and destructors, writing simple objects in C++ such as matrix, stacks, linear lists. Inheritance in C++, sample applications of inheritance. Function and operator over load in C++, pointers and dynamic allocations, concepts of in-line and friend functions in C++, friend classes, virtual and pure virtual functions, Concept of polymorphism, dynamic and static Polymorphism.
3,.	**Data Structures using C++** (20 Hrs. Theory, 72 Hrs. Practical)	**Linear data structures:** stacks, queues, linked lists, doubly linked lists. **Non-linear data structures**: Trees and graphs. **Sorting and Searching:** Typical sorting and searching **techniques**
4.	**Software development techniques** (12 Theory)	Introduction to Soft ware life cycle, Requirement collection, cost estimation, development, testing, management. System analysis and design, System investigation and analysis, system life cycle, Output design, input design, file design, system design and implementation

Module III: Tools for Web Programming & Project

Sl.No.	Topics	Theory & On the Job Training
1.	**Fundamentals of VB** (24 Hrs. Theory, 66 Hrs. Practical)	Concepts of event driven programming, Creating simple VB project work space, Visual Basic IDE, design view, code view, properties window, form layout window, tool box, working with controls such as Frame, Static Text, Text Box, Combo Box, List Box, Radio Buttons, Check Boxes. Data types in VB, Control structures, Standard library functions, Writing VB applications such as creating a calculator, Finding roots of a quadratic equations etc.

		Working with VB Forms, typical properties and methods of Form, Creating menus, working with files, writing sub-programmes, using standard controls such as Directory, Drive, and File controls, Writing typical applications using above features. Adding components and references to VB project work space, using grid controls, ODBC concept, Procedure to create a DSN, connecting to database, writing database applications using VB.
2.	**RDBMS** (24 Hrs. Theory, 42 Hrs. Practical)	Relational Data base concepts, SQL, ODBC concepts, working with typical databases such as MS SQL Server, Oracle 9i., Object Oriented Distributed database system concepts.
3	**ASP** (24 Hrs. Theory, 66 Hrs. Practical)	Creating Web and FTP sites using MS IIS Server. Fundamentals of Web programming, Introduction to ASP, Client & Server side scripts, JAVA and VB scripts, Creating simple Web pages using ASP, Working with ASP objects. Data base connectivity through ASP, building simple web based applications. Creating a web based system, which will provide login facility, browsing and updating the student information.
4.	**Project work** (42 Hrs Lab)	Live project on any Web based application

List of Tools & Equipment:

10 Computers – Pentium II and above with Internet facility
5 Printers
Necessary software (latest versions)

Qualifications for Teaching Faculty:

M.C.A./ B.Tech. (C.S.) / M.Sc. (C. S.) / C or B or A level Certificate from DOEACC / Any P.G. with P.G. Diploma / B.C.A. with two year experience in teaching or programming / Polytechnic Diploma in C.S. with two year experience in teaching or programming/ GNIT Certificate

Reference Books:

1. Fundamentals of Ms-office (BPB)
2. Computer Networks – Tanenbaum
3. Database Management system – Bipin Desi
4. Let us "C" – Yashwant Kanitkar
5. Mastering C++ - BPB Publication
6. ASP Unleashed
7. The Complete Reference Oracle 9i – Scott Urman, Muller (TMH)
8. Internet – The Complete Reference (TMH Publication)
9. Mastering Visual Basic – Evangelos, Petroutsos. (BPB Publication)
10. Systems Analysis - Awad

Resource Persons:

1. H. Rama Krishna,
   Associate Professor,
   C.B.I.T., Hyderabad.

2. G. Padmavathi,

Director,
GIGASOFT Software Training Institute,
Nallakunta, Hyderabad