B.SC. VOCATIONAL COMPUTER APPLICATION

Course 1: Fundamentals of Computer

Fundamental of computers and programming, History of computer, classification of computer, computer generation, Number systems, BCD, ASCII &EBDIC, compliment, block diagram of computers,

Hardware components :I/O devices, storage devices,

Software: System software and application S/W, Compiler, interpreter, source program, object program. Machine language, assembly language, high-level language, introduction to OS.

Programming: Algorithm, Flow Chart, structured programming.

Course 2: Programming Concepts Using C

Algorithm, Flowchart, Structure programming and its advantages. What is computing C programming? Features of C language. Structure of a C program, variable and Constants. C Preprocess or # include and # define command Primary data type: Integer, float, Char etc.. Storages classes: automatic, registers, Static and External storage class.

Operators: Arithmetic's and Assignment operators, Compound assignment of operators, The modulus operator, Increment and decrement operators, Type casting, size of operator Etc.

Control Structures: for, while and do while conditional execution in using if.

Functions: Arguments and Reference values Recursion. The declaration of function type. Proto type, call by reference, call by value.

Array: Array definition, Array notation, multidimensional and array string array.

Pointer: Introduction to pointers, pointer notation, and simple program based on above topic.

LABORATORY -I : Practicals based on course 2.

Course 3: Operating System

Introduction to the various categories of the software, operating system and its functions. Interaction of operating system with hardware and user programs. Various components of operating system with reference to DOS and window family. Batch programming system, multi programming system, time sharing system, real time operating system, multitasking , multi processing.

Memory management,: Scheduling, Deadlock

File systems: Dictionary structure, File protection allocation of disk space, Implementing Files access, File sharing, file system reliability.

Introduction to Unix OS , File system of Unix, Unix commands chdir, chmod fork, exit, kill, mount, pipe, open.

Course 4: Data Structure

Arrays, representation of single and multi dimensional arrays, stack and queue: introduction and primitive operations on stacks, stacked application infix, prefix, postfix expression, introduction and primitive operation on queue, dequeue and priority queues, Lists introduction to linked list, sequential and linked, doubly linked lists.

Trees: Introduction and terminology searching and sorting techniques linear search, binary search bubble sort, insertion sort shell sort and radix sort.

LABORATORY -II : Practicals based on course 4

ON THE JOB TRAINING -I.: Visit to Industry /Computer Institution

Course 5: DBMS-I

Introduction to DBMS:

Operational Data, Introduction Database, views of Database, Three level of architecture, instances and schimas, purpose of databases advantages and disadvantages of DBMS, Data Model, Database languages.

E-R Model: Entity relationship model, entity and entity set. attributes and keys. Relationship set, E-R diagram strong and weak entities.

Course 6 : OOp's using C++

Object oriented programming, basic concepts of oop- object classes, data abstraction and   inheritance, polymorphism, dynamic binding, Message communication, Benifit of oop.

What is C++, structure of C++ program, compiling and limiting, variable and constraints?

Data type: Integer, Chart, Float, etc., Dynamic initialization of variables, reference variable, operators in C++, scope resolution operators, memory management operators, type cast operators.

Functions: main (), function prototyping call by reference, call by value, return by reference, inline function,. recursion default constants typing argument, Constant arguments, friend function.

Class and objects: Class definition structure definition space type a class, private and public modifier to class, arrays with in a class defining member functions, objects, memory allocation for object, arrays of objects, function argument ,static data member and static member function, pointer to members.

Construct and Deconstructor: Inheretance, polymorphism base.

LABORATORY -III : Practicals based on course 6.

Course 7: DBMS- II

RDBMS: concepts and terminology, set theory ,concept and fundamental set operation ,membership operation intersection, difference operation attributes and domain, relation concepts of keys.

Normalization: functional dependencies, universal relation ,decomposition 1N,2NF,3NF,BCNF etc. Database languages-SQL,DML,DDL,DCL etc.

Database administration: DBA, Role, functionality and importance .Introduction to file organisation.

Course 8: System Analysis & Design

System concept and information system environment to software development, life cycle, role of system analysis feasible standby cost/benefit analysis, system planning, system design, system testing and implementation

LABORATORY -IV : Practicals based on course7

ON THE JOB TRAINING -II : Visit to Industry /Computer Institution

Course 9:

Computer network :

Concepts of computer network, Advantages and disadvantages of network ,Simplex, Half duplex, Communication serial and parallel transmission.

Topologies: Star, Ring, Tree, Mesh, bus, hybrid.

Catagories of Network-LAN, MAN, WAN, ATM. Introduction to OSI/TCP model .

Transmission Media: Guided &unguided.

Switching: Circuit switching, packet switching, message switching.

Course 10: **Course 306: VB 6.0 (Visual Basic Programming)**

- Introduction Visual Basic
- Concepts of Programming
- Visual basic Controls
- Numbers and Strings
- Control Statements
- Menus and Dialog Boxes in Visual Basic
- Graphics
- Object Linking and Embedding
- Working with Files
- Database and Database Management System
- Data Reports
- Wizards in VB 6.0 Crystal Reports
- Basics of Active
- Internet Features

LABORATORY -V : Practicals based on course10.

Course 11: Major Project

Course 12: MANAGEMENT INFORMATION SYSTEM

Role, objective & importance of M.I.S. The place of Information systems in the organizations the power of MIS.

Major types of information system in organization, Decision support system (DSS) Devices and tools for Interacting with MIS Hardware, Software and Telecommunication, Managing Data resource.

Major Problem areas in information system.