2.7 Computer Applications
Theory
Introduction to Computer Science
   a. Simple model of computer and its working, parts of computer, CPU, memory, input/output devices.
   b. Computer languages and their hierarchy machine language, assembly language, high level language, comparison of high level and low level language.
   c. Introduction to microcomputers
   d. Concept of operating system.
Flow Chart and Algorithm Development
   a. Definition and properties of algorithm.
   b. Flow chart symbols and their use.
   c. Examples of efficient algorithm and flow chart.
   d. Conversion of algorithm/flow chart to high level language.

Introduction to Computer Programming
   a. BASIC language : BASIC character set, constants, variables, expressions
   b. Statements and system commands in BASIC.
   c. Entering and editing BASIC program.
   d. Control structures, repetition statements(loops), nested loop, definite and indefinite loops, selection statements, arrays.
   e. Functions and subroutines
   f. Concept of files : Program files and data files, Sequential files and random access files.
   g. Elementary BASIC programs for numeric and string processing.

Introduction to Business Data Processing
   a. System : Definition, characteristics, elements of system, types of system(physical and abstract) (open & closed), information sysem.
   b. Introduction to business data organization : Production, stock control, costing purchase, marketing, finance, need of computers in modern business organizations.
   c. Data capture and Validation : Input/Output devices, special emphasis on key to disk systems, input/output form design, documentation and its importance, simple tests to check validity of data (checking format,type and range of data)
   d. Security : Definition, needs, threats to system security. Control measures (use of passwprds), recovery of data.
   e. Business files : Master files, transaction files, sorting, searching, merging, matter, summarizing of files, file organization(sequential, random, dyanamic)
   f. Concept of database and database management system : Objectives of database management system, advantages and disadvantages of Database Management System, examples of DBMS package (DBASE III).
Computer Applications : Scientific research, business application, industrial application, engineering design, meteorology, medicine, education, information system.

PRACTICALS

Simple programs in Basic
1. Programs to calculate simple and complex arithmetic expressions.
2. Programs using control structures.
3. Programs using loops and nested loops.
4. Programs using functions and subroutines.
5. Programs using arrays.
6. Simple programs using files.

Programming in DBASE III
1. Programs using memory variables and data field variables.
2. Programs to calculate mathematical expressions.
3. Programs using inbuilt functions exABA, INT, SQRT, MIN, MAX, LOG, EXP, ROUND etc.
4. Use of commands COUNT, SUM, AVERAGE, Total in direct and indirect model (in programs) mode.
5. Managing database : Creation of database, insertion, modification and deletion of records.
6. Programs showing sequential and direct access of files.
7. Programs using index files.
8. Generation of simple reports (through report processing feature of DBASE or through programs).
9. Programs with user defined menu system.
10. At least one program using master and transaction files.

Books Recommended :
1. Computer and commonsense – Reger Hunt & John Shelly, Prentice hall of India.
2. Programming with BASIC – Goottfried, Schaum Series, McGraw Hill.
3. BASIC Programming : Self taught – Seymore C. Hirsch, Prentice Hall of India.
4. Business Data Processing – Cliffton, Prentice Hall on India
5. Introduction to computer science – Bartee, McGraw Hill
6. System Analsis and Design – Award, Galgotia Publication.
7. Understanding DBASE III – alon Simpson, BPB Publications.
8. Mastering DBASE III – Townsend, BPB Publication.