HIGHER SECONDARY (CLASSES XI AND XII)

COMPUTER APPLICATION (PG)

1. Computer Fundamentals:

Parts of a Computer, Block diagram of a Computer system and brief description of each functional unit, Input and Output devices, Memory hierarchies, Application and System software, Computer Languages.

2. Computer Arithmetic:

Positional number systems and conversion of one base to another, Binary arithmetic, Negative number representation using 1's and 2's complement, Various codes: ASCII, EBCDIC, BCD, BCD arithmetic.

3. Digital logic fundamentals:

Boolean algebra: Concepts and basic postulates, Forming Boolean expression, Minimization of function using algebra and K-maps, Implementation using basic gates.
Combinational Circuits: Half Adder, Full Adder, Multiplexer and Demultiplexer.
Sequential Circuits: Flip flops and Counters.

4. Operating System:

Concept of Operating System, Functions of Operating System, Classification of Operating System, Process scheduling, Brief study about processor Management and memory management algorithm, Concept of Deadlock.

5. Data Structure:

Date types and Structures-defination, Concept of linear and nonlinear data structures, Linear data structure: Array, Linkist, Stack, Queue.
Nonlinear data structure: Graph, Tree
Brief Study of algorithm, Complexity of an algorithm, Studies of searching and Sorting algorithms.

6. Programming Language:

(a) C- Language:
Basic structure, Character set, Keywords, identifiers, Constant and variables-type declaration. Arithmetic, Relational, Logical and Assignment operator, Conditional Operator, Formatted Input and Output, Branching and Looping. Array-one dimensional and two dimensional, Pointers, Structure and Union, File handling.

(b) Object Oriented Programming:
Concept, Difference with procedure oriented programming, data abstraction-object, class and methods, inheritance and polymorphism, OO approach- C++ as OO language.

7. DBMS:

Advantage of using DBMS, Architecture, Relational Data Model, E-R data model, Writing of simple query, using relational algebra and SQL, Normalisation.

8. Network:

Goals of Computer Network, Performance of a network, LAN, MAN, WAN and Internet, Various topologies and transmission media, OSI and TCP/IP Model, Concept of Protocols, Routing techniques, Switching techniques: Circuit and packet switching, Addressing schemes: Physical, logical and port addressing, Application of Network: e-mail, chatting, file transfer, Basic concept about WWW, DNS, URL.