

## HIGHER SECONDARY (CLASSES XI AND XII)

### COMPUTER SCIENCE (PG)

#### 1. Introduction and Background:

Generation of computers, Basic building blocks of Computer and their descriptions. Number system – Binary, Octal, and Hexadecimal, Fixed and floating point number representations, Different codes – BCD, Excess – 3, Gray, ASCII, and EBCDIC, Binary arithmetic, Complement representations.

#### 2. Digital logic:

Logic gates, Truth table, Minimization of Boolean expressions, Adder, Subtractor, Multiplexer, Encoder, Decoder, Flip Flops, Register, Counters.

#### 3. Computer Organization:

CPU Organization with registers, Different addressing modes, Instruction formats, Hardwired and Micro programmed control units, Arithmetic algorithms related to arithmetic operations. Primary memory, Secondary memory Cache memory and Virtual memory, different I/O devices such as keyboard, Mouse, Dot matrix printer, Visual display unit.

#### 4. Overview of programming:

Introduction to computer based problem solving, Algorithms – time and space complexity analysis, Flow Chart, Pseudo code, Decision table, structured programming concepts, Programming languages classifications-machine, Assembling and high-level, Translators, Editors, Operating Systems – Multi programming, Multi tasking, Time sharing, Multi processing, Fundamental data Structure concepts – Array Stack, Queue and Linked lists.

#### 5. Programming Languages:

BASIC, C, C++, Program design, Implementation of the primitive data structures, Object oriented concepts.

#### 6. Overview of Software and Packages:

Utility commands in DOS, Windows and LINUX operating systems, Shell programming and application of batch files, File managements – use of folders, and directory systems, Database programming for commercial applications using packages in star office and use of spreadsheet packages, Elements of word processing.

#### 7. Computer Network:

Concept of networking, Client server concepts, E-mail, chat, internet, www, use of scripting language, html, Web page design etc.