

Course Name: Certificate in Computer Applications (CCA)

Duration of Course: 6 Months

Eligibility: 10th Standard or equivalent

Semester 1st

CODE	SUBJECTS	CREDITS
CCA101	Computer Fundamentals and Windows Based Application	4
CCA102	Communication Skills in English	4
CCA103	Programming in C	4
CCA104	Data Structure	3
CCA105	C Programming Lab	3
CCA106	Windows based Application	3

Detailed Syllabus

Semester: 1st

Subject: Computer fundamentals and Window based Application

Code: DCA101

Section A

Assembler: Overview of the assembly process Design of two pass assembler Single pass assembler Macros Macro definition and usage schematics for macro expansion Design of a Macro pre- processor Design of a Macro assembler Introduction to Loaders-&-Linkers.

Section B

Compiler: Introduction Analysis of the source program phases of a compiler Compiler construction tools Lexical analysis Role of the lexical analyser Specification of tokens , Recognition of tokens Lexical analyser generators.

Syntax Analysis Role of the parser Context free grammars Top-down parsing Bottom-up parsing Operator precedence parsing LR parsers (SLR, Canonical LR, LALR),Parser-generators.

Section C

Algorithm development, Techniques of problem solving, Flow-charting, Step-wise refinement, Algorithms for searching, sorting (exchange and insertion), merging of ordered lists.

Section D

Representation of integers, characters, real Data types : constants and variables; Arithmetic Expressions, Assignment statement, Logical expression, Sequencing, Alteration and iteration; ring processing; Sub programs, Recursion, Files and pointers; Structured programming concepts; Top down Design, Development of efficient program; Program correctness; Debugging and testing of Programs.

Detailed Syllabus

Semester: 1st

Subject: Communication skills in English

Code: DCA102

SECTION A

Basic Skills :Listening,

Speaking, Reading & Writing.

A Practical study of Grammatical Rules (Noun, Pronoun, Adjectives, Verb, Adverb)

Tenses :Types

of Tenses

SECTION B

Idioms & Phrases,

Confused words :Paronyms,

Homonyms

Synonyms, General Abbreviations,

One word Substitution

SECTION C

Simple present, progressive & present perfect, Simple past, progressive & Past perfect, Indication of Futurity, the passive (Present & Past, Present & Past Perfect).

Reported Speech :(

I) Declarative Sentences (II) Imperative

(III) Interrogative (Question) (IV) Active, Passive

(V) Preposition (VI) Articles

SECTION D

Writing Skills :Paragraph

Writing, Composition Writing, Report Writing, Application & Letter Writing,

Essay Writing.

Detailed Syllabus

Semester: 1st

Subject: Programming in C

Code: DCA103

SECTION A

Constants, variables, Keywords, Decision Control Structure (if, Ifelse, Nested ifelse, switch), Loop control Structures (While, Dowhile, for), Continue, break. Storage classes (Automatic, Register, Static, External). Macro, Macros with arguments, macros versus functions.

SECTION B

Function Definition, Accessing function, function prototype, passing arguments to function (call by value, call by reference).

SECTION C

Processing as array, passing array to functions, multidimensional arrays, string functions (Strlen (), strcpy(), strcat(), strcmp() etc.)

SECTION D

Pointer declaration, Passing Pointer to functions, Dynamic memory allocation, operations on pointers, Array of pointers Defining and processing of structures and unions, structures versus unions.

Detailed Syllabus

Semester: 1st

Subject: Data Structure

Code: DCA104

SECTION A

Problem solving concepts, top down and bottom up design, structured programming

Concept of data type and data structure, differences between data type and data structures, view of data structures at logical level, implementation level and application level, Builtin data structures and user defined data structures

SECTION B

Concept of dynamic variables, difference between static and dynamic variables, concepts of pointer variables

Study of the following of the following user defined data structures using static and variables Builtin data structures like arrays, records User defined data structures like stacks, queues, linked lists, circular linked lists, doubly linked list

SECTION C

Nonlinear data structures: trees, terminology of trees, concepts and applications of binary trees, tree traversal techniques and algorithms.

SECTION D

Sorting and searching algorithms and their efficiency considerations

Considerations for choice of proper data structure

