

## C++ Programming (Curriculum)

### Introduction to C++

- Why programming?
- Dev C++ compiler Integrated Development Environment (IDE)
- Programming process (coding, compilation and execution)
- C++ program structure
- Syntax and rules
- Data types (int, char, float)
- Constant and variables
- Standard input/output (cin, cout)
- Program debugging
- Simple program coding

### Logical statement (if)

- Structure & syntax of **if** statements
- Simple **if** statement
- **if** and **else** statement
- **if** and **else if** statement
- Boolean expression and relational operators
- Compound Boolean expression and boolean operators (&&, || and !)
- Program coding
  - Test mark grading problem
  - Class allocation problem

### Character and string

- Character type (char)
- String (array of characters)
- String input without space (cin)
- String input with space (cin.getline function)
- Accessing character in string (first and last character)
- String functions
  - Length of string
  - Upper and lower case of string
  - Strings comparison
- Program coding
  - Dealing with upper and lower case
  - String manipulation

## **C++ function**

- The general format of function (return type, function name, arguments)
- Coding of function
- Calling a function
- Some examples of coding using function
- Built-in functions
- Random number functions: **srand()** and **rand()**
- Function coding problems:
  - Find maximum and minimum of 2 integers
  - Generate various subjects marks, compute grades and MSG

## **Loop statements**

- **do** and **while** loop
- **while** loop
- **for** loop
- examples of using various loop statement
- Problem solving with loop
  - Highest Common Factor (HCF)
  - Lowest Common Multiple (LCM)
  - Prime numbers listing

## **Array**

- Array declaration
- Index of the array and its range
- Accessing an element in the array
- Store value to an element of the array
- Two dimensional array
- Some application of array in programming
  - sorting
  - searching