

## **APT 1020 Introduction to Programming Using C/C++**

*Credit: 3 Units*

This course introduces programming in C/C++. Topics to be covered include: C++ and a typical C++ development environment; Simple C++ programs; Introduction to classes: defining a class, member function, data members; Initializing objects with constructors; separating interface from implementation; Structured programming and control statements: algorithms and pseudo code; if and if...else selection; while, do...while, and for repetition; switch multiple-selection; logical operators. Program components in C++, storage classes, scope rules, references and reference parameters; recursion. Declaring and using arrays, passing arrays to functions, multidimensional arrays. Working with pointers; introduction to Object-Oriented programming: base and derived classes, constructors and destructors, public, protected and private inheritance, software engineering with inheritance, introduction to polymorphism. Stream Input/Output classes and objects. Exception handling, when to use exception handling. Files and streams; creating, writing, reading sequential and random-access files; String and substring processing; Searching and sorting: linear and binary search algorithms; selection and insertion sort algorithms. The course will be supported by several lab C/C++ exercises to augment the concepts.

*Pre-requisite: IST 1020*