Introduction to Programming (IIPG)

Algorithm definition; Flowcharts and pseudo codes
Simple programs using default data types (int, float, STL strings, etc); Ranges of various data types
Simple operations (+, -, *, /, %); conditional statement
Loops
Number systems – binary, ocatal, hexadecimal; 1's and 2's compliments
math library; bit manipulations
Functions; Recursion
Passing by values and by references; Vectors and vector of vectors
Iterators; Lists; Type casting
Maps; Templates
Basic STL Algorithms
Classes; Public, private and protected members
Constructors and destructors
IO streams; File processing, sstreams and stringstreams
Inheritance; Exception handling
Function and operator overloading
Macros and header files; Namespaces;
C-like approach; Pointers; arrays; `static` *vs* `const`; linked lists

Books:
1. **Thinking in C++, Volume 2: Practical Programming by Bruce Eckel, Chuck Allison; Prentice Hall**
2. Object Oriented Programming in C++ by E. Balaguruswamy; Tata McGraw-Hill