

# Course Contents for Learning C++

## Lab Setup

This training course requires the following setup.

- PC / Laptop with either Windows or Linux OS
- Eclipse IDE (Free download from [www.eclipse.org](http://www.eclipse.org))
- Internet connectivity

## Course Contents

### L01 – Getting Started

- Introduction to C++
- Setup and installation
- Hello World C++
- Outputting Text

### L02 – Basic Syntax

- Variables
- Strings
- User Input
- Binary Numbers and memory
- Integer types
- Floating point types
- Char and Bool types
- If, If-else
- Comparing floats
- C++ Conditions
- Do-While and For loops
- Arrays, multidimensional, size of
- Switch-case statements
- Data structures

### L03 – Sub routines

- Functions and return values
- Function parameters
- Headers and prototypes

### L04 – Object oriented coding

- Classes
- Data Members
- Constructor and destructors
- Getters and Setters
- String streams

- Overloading constructors
- “this” keyword

#### L05 – Pointers and Memory

- Pointers
- Arithmetic
- Pointers and Arrays
- Pointer Arithmetic
- Char arrays
- Reversing string
- References
- “const” keyword
- Copy constructor
- New operator
- Returning objects from Functions
- Allocating memory
- Namespaces

#### L06 – Object Oriented

- Classes and Objects
- Inheritance
- Overloading
- Polymorphism
- Abstraction
- Encapsulation
- Interfaces

#### L07 – More examples

- Using C++ libraries
- Basic programs
- Working with pixels and colors

#### L08 – Advanced

- Files and Streams
- Exception Handling
- Dynamic memory
- Namespaces
- Templates
- Preprocessor
- Signal handling
- Multi-threading
- Object oriented design considerations
- Postfix and prefix
- Creating Libraries