

# WORKSPACE WEB DEVELOPMENT & OUTSOURCING TRAINING CENTER

## Course Outline (2015)

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### Basic Programming With Procedural & Object Oriented Concepts (C, C++)

**Workspace Web Development & Outsourcing Training Center**

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<b>Course Hours</b>	48
<b>Total days</b>	16
<b>Prerequisite</b>	Mathematics
<b>Class day</b>	Normally Thursday/ Friday / Saturday/ Sunday <b>(Normally 2 days per week)</b>

## COURSE DESCRIPTION

The course fully covers the basics of programming in the “C” programming language and Object Oriented Programming in “C++” programming language. The course demonstrates fundamental programming techniques, customs and vocabulary including the most common library functions.

## OBJECTIVES

At the end of the course, the students will be able to:

- Have a knowledge regarding the basic programming topics of C and C++
- How to write a programs with C and C++
- Successfully design a Procedural Solution to a Problem
- Successfully design an Object Oriented Solution to a Problem
- Development of the solution efficiently
- Develop skills for large scale works

# TOPICS TO BE COVERED

<b>TOPICS</b>	<b>SPECIFIC OBJECTIVE(S)</b>	<b>TIME FRAME</b>	<b>SUGGESTED ACTIVITIES</b>	<b>TEACHING STRATEGY(S)</b>
General Discussions and Introduction to Programming Language C (I)	Numerical Bases, Character Set, Algorithm, Flow Chart, Pseudo Code, Introduction to C, Environment Setup	Week 1	Reading suggested articles, notes.	Lecture notes, question
Introduction to Programming Language C (II), Data Storage(I) and Operators	Execution of program, Abstraction, Layout of C program, Variables, Identifier, Data Types, Operator, Operand and Operations	Week 2-3	Lecture, Lab Work and Assignments	Lecture notes, question
Data Storage (II), Control Structures and Functions	Decision Structures, Selective Structures, Iteration Structures, Array, Strings	Week 3-4	Homework, Mini-project	Lecture notes, question
<b>Test Project</b>				
Introduction to Object Oriented Programming, Functions in C++, Class, Constructor and Destructors	Abstraction, Encapsulation, Inheritance, Polymorphism, Procedural vs OOP, Procedural Programming in C++, Function overloading, default function parameters, friend functions, stream insertion and stream extraction, unary operators, binary operators, constructors and default arguments, destructors. Creating classes, scope and access, interface and implementation, access control, access and utility functions.	Week 5-6	Homework, Mini-project	Lecture notes, question

Classes Continued, Operator Overloading, Inheritance and Polymorphism	Constant objects and member functions, objects as members, friend functions and classes, this pointer, new and delete, static class members, pointers to class members. Overloading unary and binary operators. Base classes, derived classes, protected members, member functions, overriding, public, private and protected, inheritance, direct and indirect base, classes, constructors and destructors calling order, multiple inheritance.	Week 7	Lecture, Lab, Live Work	Lecture notes, question
C++ Stream Input/Output, File Processing, Exception Handling	Streams, stream output, stream input, unformatted input/output, manipulations, format, states, error states, file and streams, sequential access files, random access files. Basic, throwing, catching, rethrowing, stack unwinding, constructors and destructors, inheritance, auto pointer, standard library exceptions	Week 8	Homework, Lecture, Live Work	Lecture notes, question
<b>Final Project Continues</b>				

# COURSE REQUIREMENTS

## Student Attendance

All students are expected to attend all scheduled classes, and to read all assigned chapters / materials before coming to class.

## Class Participation & Peer Evaluation

You Students are expected to participate actively in the class. Your contribution towards your team will be counted too.

# TEXTBOOK/ REFERENCES

- C: The Complete Reference *by* Herbert Schildt;
- C++: The Complete Reference *by* Herbert Schildt;
- Tutorials Point tutorials.
- [www.cplusplus.com](http://www.cplusplus.com)
- Other Online Recourses.