



## Bridge Course

### Basic Programming & Logic building through C++

**Class: SE – EXTC (A&B)**

**Date: 01 -08-2017**

#### **Gap Identification:**

- Lack of programming and logic building skills in the students.

#### **Course Description:**

In Basic Programming & Logic building through C++, students will improve their programming skills by building their logic. C++ program is an object oriented programming language , C++ is a high level language that is much easier to use than the other low level languages such as binary coding , It takes much more space than low level languages but it is much easier to understand and learn .Using C++ Programming Language we can create different kind of Software like System software, Application software, device drivers, embedded software, high-performance server and client applications and entertainment software such as video games.

#### **Prerequisites:**

Students are expected to have basic knowledge of C language

#### **Learning Objectives:**

1. To make learner familiar with installation, basic data types, keywords, operators, loops and functions of C++
2. To make learner apply the concept of Array & pointer in C++ programming
3. To make learner apply the concept of Object Class & inheritance in C++ programming
4. To make learner apply the concept of Polymorphism in C++ programming
5. To make learner apply the concept of Data Abstraction in C++ programming
6. To make learner apply the concept of Strings & Exception Handling in C++ programming
7. To make learner apply the concept of File & Stream in C++ programming

#### **Learning Outcomes:**

8. The learner will be able to install and define basic datatypes, keywords, operators, loops and functions of C++

9. The learner will be able to apply the concept of Array & pointer in C++ programming
10. The learner will be able to apply the concept of Object Class & inheritance in C++ programming
11. The learner will be able to apply the concept of Polymorphism in C++ programming
12. The learner will be able to apply the concept of Data Abstraction in C++ programming
13. The learner will be able to apply the concept of Strings & Exception Handling in C++ programming
14. The learner will be able to apply the concept of File & Stream in C++ programming
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**Details for Course Conduction:**

**Detailed Syllabus: Part1** (for odd semester)

Sr. No.	Module	Detailed Contents	Hours
1.	<b>Introduction to C++</b>	1.1 What is C++, C vs C++, C++ History, C++ Features, C++ Installation, C++ Program, C++ cout, cin, C++ Variable, C++ Data types, C++ Keywords, C++ Operators 1.2 C++ Control Statement, C++ if-else, C++ switch, C++ For Loop, C++ While Loop, C++ Do-While Loop, C++ Break Statement, C++ Continue Statement, C++ Goto Statement, C++ Comments 1.3 C++ Functions, C++ Functions Call by value & reference, C++ Recursion, C++ Storage Classes	03(T) + 03(P)
2.	<b>Arrays &amp; Pointers</b>	2.1 C++ Arrays, C++ Array to Function, Multidimensional Arrays 2.2 C++ Pointers	02(T) + 02(P)
3.	<b>Object Class &amp; Inheritance</b>	3.1 C++ Object Class, C++ OOPs Concepts, C++ Object Class, C++ Constructor, C++ Destructor, C++ this Pointer, C++ static, C++ Structs, C++ Enumeration, C++ Friend Function 3.2 C++ Inheritance, C++ Inheritance, C++ Aggregation	02(T) + 02(P)
4.	<b>Polymorphism</b>	4.1 C++ Polymorphism, C++ Overloading, 4.2 C++ Overriding, C++ Virtual Function	02(T) + 02(P)
		<b>Total Hours</b>	18

**Detailed Syllabus: Part2** (for even semester)

Sr. No.	Module	Detailed Contents	Hours
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1.	<b>Abstraction</b>	1.1 C++ Interfaces, C++ Data Abstraction 1.2 C++ Namespaces	02(T) + 02(P)
2.	<b>Strings &amp; Exceptions</b>	2.1 C++ Strings 2.2 C++ Exception Handling, C++ try/catch, C++ User-Defined	02(T) + 02(P)
3.	<b>File &amp; Stream</b>	3.1 C++ File & Stream	01(T) + 01(P)
4.	<b>C++ Programs</b>	Fibonacci Series, Prime Number, Palindrome Number, Factorial, Armstrong Number, Sum of digits, Reverse Number, Swap Number, Matrix Multiplication, Decimal to Binary, Number in Characters, Alphabet Triangle, Number Triangle, Fibonacci Triangle	01(T) + 07(P)
		<b>Total Hours</b>	18

### Suggested Reading

1. The C++ Programming Language by Bjarne Stroustrup, 2013. Or, Programming: Principles and Practice Using C++ by Bjarne Stroustrup, 2014 – These books will be followed in the course
2. The C Programming Language (Ansi C Version) by Brian W. Kernighan and Dennis M. Ritchie, 1990. Or, The C Programming Language by Brian W. Kernighan and Dennis M. Ritchie, 2015
3. C++ reference (C++98 and C++03). <http://en.cppreference.com/w/>
4. Presentations used in the Course

### Reference (Advanced) Material

1. Effective C++: 50 Specific Ways to Improve Your Programs and Design by Scott Meyers, 1997. Or, Effective C++: 55 Specific Ways to Improve Your Programs and Designs (Third Edition) by Scott Meyers, 2005
2. More Effective C++ by Scott Meyers, 2002
3. Modern C++ Design by Andrei Alexandrescu, 2004
4. Exceptional C++: 47 Engineering Puzzles, Programming Problems, and Solutions by Herb Sutter, 1999
5. More Exceptional C++: 40 New Engineering Puzzles, Programming Problems, and Solutions by Herb Sutter, 2001
6. C++ Templates: The Complete Guide by David Vandevoorde and Nicolai M. Josuttis, 2002
7. The C++ Standard Library: A Tutorial and Reference by Nicolai M. Josuttis, 2012
8. Effective STL: 50 Specific Ways to Improve Your Use of the Standard Template Library

**Online Courses:** [https://onlinecourses.nptel.ac.in/noc17\\_cs24](https://onlinecourses.nptel.ac.in/noc17_cs24)

**Industry Support:** List of Companies/Industry that will Recognize/value this online course  
Programming in C++ include – Microsoft, Samsung, Xerox, Yahoo, Google, IBM, TCS, Infosys, Amazon, Flipkart, etc.



**Term work:**

No Term-work as it is a bridge course, but students should perform the lab experiments, projects and maintain a soft copy with them and prototype of the project with the faculty in-charge.

**Term Work Marks:** NA

**Oral Examination:** NA

**Theory Examination:** NA

The committee members are as follows:

Sr. No.	Name	Designation	Responsibility
1	Dr. Vinitkumar Dongre	HOD-EXTC	Getting Official permission
2	Mr. Niket Amoda	Domain Incharge	Speaker

**SD**

Mr. Niket Amoda

Domain Incharge

**SD**

Dr. Vinitkumar Dongre

HOD-EXTC

Glimpses of the bridge course on “Basic Programming & Logic building through C++”

