



# SYLLABUS

<b>Course Title</b>	<b>Programming in C &amp; C++</b>
<b>Course Code</b>	<b>MIT101</b>
<b>Course Credit</b>	Theory(Hrs) : 4
	Practical(Hrs) : 4
	Tutorial(Hrs) : 0
	Credits : 6

## Course Objective

The objectives of the course are:

- To introduce the student about programming skills so that, they can utilize this skills in the field of computer science.
- The objective of this course is to provide the student with the fundamental knowledge and skills to become a proficient C & C++ programmer. The student will learn to transpose the physical problem domain into procedural & object oriented program.
- Industry standards will be presented and used for program design.
- The student will program in a structured style whereby reinforcing the concepts of software quality, reliability and maintainability

## Detailed Syllabus

Sr. No.	Name of chapter & details	Hours Allotted
<b>Section – I</b>		
<b>1</b>	<b>Fundamentals of Computer Programming Languages (C &amp; C++)</b> Introduction to Programming language & classification, Study of Algorithms & Flow Chart, Data types in C, Operators & their Hierarchy, Concept of Header files, I/O Functions, Control Structures, Looping Structure, Arrays, Strings	<b>08</b>

<b>2</b>	<b>Functions in C &amp; C++</b> Introduction, built in functions & needs for user defined functions, Form of C functions, return values & their types, Calling functions, category of functions, arguments & return values, nesting of functions, Recursion, Function with arrays, Function overloading, default parameter, reference parameter	<b>08</b>
<b>3</b>	<b>Structures and Unions</b> Introduction , giving values to a member, initialization of structure, Array of structure, structure within structure, structure & functions, Unions	<b>04</b>
<b>4</b>	<b>Pointers</b> Introduction, declaring & initialization of pointers, Pointer expressions, increment & scale factor, Pointers & arrays, pointer & char String, Pointers & functions, pointers & structures and pointers to pointers	<b>06</b>
<b>Section – II</b>		
<b>5</b>	<b>File Management (C &amp; C++)</b> Introduction, Defining, opening and closing file, Input/output operations on files, Error handling during I/O random access file, Command line argument	<b>08</b>
<b>6</b>	<b>Class &amp; Objects</b> Introduction to a Class, Defining Classes, Defining Methods, Constructors, Destructors, Creating Objects of a Class, use of this pointer, Defining and Using a Class, Friend functions, inline functions, static functions, static data members.	<b>08</b>
<b>7</b>	<b>Object Oriented Concepts</b> Encapsulation, Operator Overloading, Conversion between basic data type, conversion between object and basic data types, conversion between objects of different classes, Types of inheritance, Virtual Function and Polymorphism.	<b>10</b>

#### **Instructional Method and Pedagogy:**

- Lectures will be conducted with the aid of multi-media projector, blackboard, OHP etc. Assignments based on course contents will be given to the students at the end of each unit/topic and will be evaluated at regular interval
- Minimum five experiments shall be there in the laboratory related to course contents
- Minimum six tutorials which includes solution of minimum five computer programs in each head

### Course Learning Outcomes:

On the completion of the course, students will be able to:

- **Know** the basic skills needed in computer programming.
- **Develop** structural programs using various control structures.
- **Decompose** the solution into modules at the user-defined function level.
- **Apply** concepts of polymorphism, inheritance, abstraction, information hiding.
- **Apply** the concepts of various data types, functions , arrays pointers and file management in C & C++ language.

### Text book:

- Programming in C, Balagurusamy, TMH Publication
- Programming in C++, Balagurusamy, TMH Publication

### Reference Books:

- The Complete Reference C, Herbert Schildt, 4<sup>th</sup> Edition, TMH Publication
- C Programming Language, Ritchie Dennis, Hall of India
- C Unleashed, Heathfield Richard, Tech-Media
- C Programming FAQs, Summit Steve, Pearson Education
- Let Us C, Yashawant Kanetkar, BPB Publication

### Additional Resources

- <http://cquestionbank.blogspot.com>
- [www.intelligentedu.com/](http://www.intelligentedu.com/)
- [www.hermetic.ch/cfunlib.htm](http://www.hermetic.ch/cfunlib.htm)
- N.P.T.L. Video Lecture Series
- N.I.T.T.I. Instructional Resources Videos.