Course Type	Course Code	Name of the Course	L	T	P	Credits
ESC	**NCSE201**	**COMPUTER PROGRAMMING WITH C++**	3	0	0	3

Course Objective

This syllabus is designed in such a manner that it will provide the understanding of C++ language in detail as well as object oriented programming concepts.

Learning Outcomes

- Learn the C++ programming language.
- Able to understand object oriented programming concept, and C++ language features.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Comparison of C with C++, Executing and Debugging a 'C++' Program, Objects and Classes, Encapsulation, Data and method binding, access specification: private, protected and public.	8	Student will learn object oriented principles
2	Inheritance: passing knowledge down, single versus multiple inheritance, sub and super classes. Code reuse, inheritance and subtyping, Interfaces versus multiple inheritance.	8	Student will learn inheritance
3	Polymorphism: Simple (or static) polymorphism (in C++), method overloading, subtype polymorphism (extending a class) through method overriding, 'virtual' methods (in C++) and distinction with non-virtual ones, abstraction through polymorphism, 'abstract' classes and methods, 'pure' virtual functions in C++.	10	Understand polymorphism
4	Exception Handling: the 'try-catch-throw' paradigm, catching and throwing errors, Multiple catch statements, Re-throwing Exceptions, Exceptions in constructors and destructors, Exceptions and operator overloading, Exceptions and inheritance, Class Templates with Exception Handling.	8	Student will understand exception handling mechanism.
5	Templates: Introduction, simple generic classes & generic function, simple example programs. STL List, Vector, Array, Map, Multimap.	8	Understand template
			Total: 42

Text Books:

1. Herbert Schildt, "The complete Reference C++", McGraw Hill Education

Reference Books:

1. E.Balagurusamy, "Object Oriented Programming with C++", McGraw-Hill.