



| <b>Syllabus</b>   |  |                              |
|---|--|------------------------------|
| <b>Unit No</b>  | <b>Contents</b>  | <b>Mapped CO</b>             |
| <b>I</b>  | <b>Introduction to C++:</b> Difference between C and C++, Evolution of C++, Programming Paradigms, Key concepts of OOP, Advantages of OOP, Variable declaration, Data types in C++, Scope access operator, Name Space, Memory management operators, Decision Statements, Control Structures, Functions in C++, Input and Output in C++.  | <b>CO1,<br/>CO2</b>          |
| <b>II</b>   | <b>Classes and Objects :</b> Introduction, Structure in C, Classes in C++, declaring Objects, Access specifiers and their scope, Defining member functions, Static member variable, static member functions, friend functions.<br><b>Constructors and Destructors:</b> Introduction, Constructors and destructors, Constructors with default arguments, Parameterized constructor, Overloading constructors, Array of objects using constructors, Constructors with default arguments. | <b>CO2</b>                   |
| <b>III</b>  | <b>Operator Overloading:</b> Introduction, The keyword operator, Overloading unary operators, Overloading binary operator.<br><b>Inheritance:</b> Introduction, Access Specifiers and Simple inheritance, Types of inheritance, Single, Multiple, Hierarchical, Hybrid, Multipath inheritances, Virtual base classes, program on simple inheritance.<br><b>Pointers:</b> Introduction, Features of pointers, Pointer Declaration, void pointer, wild pointer, this pointer.            | <b>CO2,<br/>CO4</b>          |
| <b>IV</b>   | <b>Binding and Polymorphism and Virtual Functions:</b> Introduction, Binding in C++, Pointer to base class and derived class objects, Virtual functions, Pure virtual functions, Abstract classes.<br><b>Exception Handling:</b> Introduction, Principles of exception handling, the keywords try, throw and catch, Multiple catch statements, Re-throwing an exception.   | <b>CO2,<br/>CO3,<br/>CO4</b> |
| <b>V</b>  | <b>Templates :</b> Introduction, need for templates, Definition of class templates, Definition of function templates, Overloading of template function.<br><b>STL(Standard Template Library) Introduction:</b> Algorithms, Containers and Iterators.   | <b>CO3</b>                   |
| <b>Learning Recourses</b>   |  |                              |
| <b>Text Books</b>   |  |                              |
| Programming in C++, Second Edition, by Ashok N Kamthane, Pearson Education.   |  |                              |
| <b>References</b>   |  |                              |
| 1. C++ How To Program, Dietel and Dietel, Prentice Hal .  |  |                              |
| 2. C++ The Complete Reference, 5th Edition, by Herbert Schildt, TMH.  |  |                              |
| <b>E-Recourses and other Digital Material</b>   |  |                              |
| 1. <a href="http://www.cplusplus.com">http://www.cplusplus.com</a>  |  |                              |
| 2. <a href="https://www.w3schools.com/cpp/">https://www.w3schools.com/cpp/</a>  |  |                              |
| 3. <a href="https://www.learncpp.com">https://www.learncpp.com</a>  |  |                              |
| 4. <a href="https://onlinecourses.nptel.ac.in/noc21_cs02/preview">https://onlinecourses.nptel.ac.in/noc21_cs02/preview</a>  |  |                              |
| 5. <a href="https://www.educative.io/courses/learn-object-oriented-programming-in-cpp">https://www.educative.io/courses/learn-object-oriented-programming-in-cpp</a>            |  |                              |
| 6. <a href="https://www.youtube.com/watch?v=wN0x9eZLix4">https://www.youtube.com/watch?v=wN0x9eZLix4</a> (Learn Object Oriented Programming in C++, Beau Carnes, February 2021) |  |                              |

