

Object Oriented Programming Using C++

B.E. V Semester (Open Elective)

[As per Choice Based Credit System (CBCS)scheme]

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| Subject Code | 15EC562 | IA Marks | 20 |
| Number of Lecture Hours/Week | 03 | Exam Marks | 80 |
| Total Number of Lecture Hours | 40 (08 Hrs/ Module | Exam Hours | 03 |
| CREDITS – 03 | | | |
| Course objectives: This course will enable students to: <ul style="list-style-type: none"> • Define Encapsulation, Inheritance and Polymorphism. • Solve the problem with object oriented approach. • Analyze the problem statement and build object oriented system model. • Describe the characters and behavior of the objects that comprise a system. • Explain function overloading, operator overloading and virtual functions. • Discuss the advantages of object oriented programming over procedure oriented programming. | | | |
| Module -1 | | | RBT Level |
| Beginning with C++ and its features: What is C++?, Applications and structure of C++ program, Different Data types, Variables, Different Operators, expressions, operator overloading and control structures in C++ (Topics from Ch -2,3 of Text). | | | L1, L2 |
| Module -2 | | | |
| Functions, classes and Objects: Functions, Inline function, function overloading, friend and virtual functions, Specifying a class, C++ program with a class, arrays within a class, memory allocation to objects, array of objects, members, pointers to members and member functions (Selected Topics from Chap-4,5 of Text). | | | L1, L2, L3 |
| Module -3 | | | |
| Constructors, Destructors and Operator overloading: Constructors, Multiple constructors in a class, Copy constructor, Dynamic constructor, Destructors, Defining operator overloading, Overloading Unary and binary operators, Manipulation of strings using operators (Selected topics from Chap-6, 7 of Text). | | | L1, L2, L3 |
| Module -4 | | | |
| Inheritance, Pointers, Virtual Functions, Polymorphism: Derived Classes, Single, multilevel, multiple inheritance, | | | L1, L2, L3 |

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| Pointers to objects and derived classes, this pointer, Virtual and pure virtual functions (Selected topics from Chap-8,9 of Text). | |
| Module -5 | |
| Streams and Working with files: C++ streams and stream classes, formatted and unformatted I/O operations, Output with manipulators, Classes for file stream operations, opening and closing a file, EOF (Selected topics from Chap-10, 11 of Text). | L1, L2, L3 |
| Course Outcomes: At the end of the course, students will be able to: <ul style="list-style-type: none"> • Explain the basics of Object Oriented Programming concepts. • Apply the object initialization and destroy concept using constructors and destructors. • Apply the concept of polymorphism to implement compile time polymorphism in programs by using overloading methods and operators. • Use the concept of inheritance to reduce the length of code and evaluate the usefulness. • Apply the concept of run time polymorphism by using virtual functions, overriding functions and abstract class in programs. • Use I/O operations and file streams in programs. | |
| Question paper pattern: <ul style="list-style-type: none"> • The question paper will have ten questions. • Each full Question consisting of 16 marks • There will be 2 full questions (with a maximum of Three sub questions) from each module. • Each full question will have sub questions covering all the topics under a module. • The students will have to answer 5 full questions, selecting one full question from each module. | |
| Text Book: ObjectOriented Programming with C++, E.Balaguruswamy, TMH, 6th Edition, 2013. Reference Book: Object Oriented Programming using C++, Robert Lafore, Galgotia publication 2010. | |



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