JAWAHARLAL NEHRUTECHNOLOGICALUNIVERSITY:KAKINADA



KAKINADA–533003,AndhraPradesh,India R-16 Syllabus for IT.JNTUK

 I Year-II Semester
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OBJECT-ORIENTED PROGRAMMING THROUGH C++ (R161215)

Pre requisite Course:

Computer Programming in C

Course Description and Objectives:

To know about some popular programming languages and how to choose Programming language for solving a problem.

Course Outcomes:

Upon completion of the course, the student will be able to achieve the following outcomes.

Cos	Course Outcomes	POs
1	Summarizing basics of object oriented concepts, $C++$ programming and I/O in $C++$.	1,2,3,5,10
2	Understanding on Basic concept in C++ programming, Operators, control structures, functions, and over loading, recursion	1,2,3,5
3	Explaining with classes, objects and member functions.	1,2,3,5
4	Understanding constructors, destructors, variants in them, operator over loading, and type conversions	1,2,3,5,8
5	Understanding on inheritance, types of inheritance, polymorphism and virtual functions	1,2,3,5
6	Elaborating on generic programming, templates, function templates and Exception handling	1,2,3,5,9

Syllabus:

UNIT-I:

Objective: Summarizing Basics of object oriented concepts **Introduction to C++**

Difference between C and C++- Evolution of C++- The Object Oriented Technology- Disadvantage of Conventional Programming- Key Concepts of Object Oriented Programming- Advantage of OOP- Object Oriented Language.

UNIT-II:

Objective: Understanding classes, objects, constructors, and destructors **Classes and Objects & Constructors and Destructor**

Classes in C++-Declaring Objects- Access Specifiers and their Scope- Defining Member Function-Overloading Member Function- Nested class, Constructors and Destructors, Introduction-Constructors and Destructor- Characteristics of Constructor and Destructor-Application with Constructor- Constructor with Arguments (parameterized Constructor-Destructors- Anonymous Objects.

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UNIT-III:

Objective: Understanding operator overloading, Inheritance and type conversions. **Operator Overloading and Type Conversion & Inheritance**

The Keyword Operator- Overloading Unary Operator- Operator Return Type- Overloading Assignment Operator (=)- Rules for Overloading Operators, Inheritance, Reusability- Types of Inheritance- Virtual Base Classes- Object as a Class Member- Abstract Classes- Advantages of Inheritance-Disadvantages of Inheritance

UNIT-IV:

Objective: Understanding polymorphism and virtual functions **Pointers & Binding Polymorphisms and Virtual Functions**

Pointer, Features of Pointers- Pointer Declaration- Pointer to Class- Pointer Object- The this Pointer-Pointer to Derived Classes and Base Class, Binding Polymorphisms and Virtual Functions, Introduction-Binding in C++- Virtual Functions- Rules for Virtual Function- Virtual Destructor.

UNIT-V:

Objective: Understanding generic programming, templates, function templates and Exception handling **Generic Programming with Templates & Exception Handling**

Generic Programming with Templates, Need for Templates- Definition of class Templates- Normal Function Templates- over Loading of Template Function-Bubble Sort Using Function Templates-Difference between Templates and Macros- Linked Lists with Templates, Exception Handling-Principles of Exception Handling- The Keywords try throw and catch- Multiple Catch Statements – Specifying Exceptions.

UNIT-VI:

Objective: Understanding Standard Template Library **Overview of Standard Template Library**

Overview of Standard Template Library- STL Programming Model- Containers- Sequence Containers-Associative Containers- Algorithms- Iterators- Vectors- Lists- Maps.

Text Books:

- 1. A First Book of C++, Gary Bronson, Cengage Learing.
- 2. The Complete Reference C++, Herbert Schildt, TMH.
- 3. Programming in C++, Ashok N Kamathane, Pearson 2nd Edition.

Reference Books:

- 1. Object Oriented Programming C++, Joyce Farrell, Cengage.
- 2. C++ Programming: from problem analysis to program design, DS Malik, Cengage Learing.