



GUJARAT TECHNOLOGICAL UNIVERSITY
Master of Science (Integrated-Computer Science)

Semester: II

Subject Name: Object oriented Programming in C++

Subject Code: 1320304

Teaching and Examination Scheme:

| Teaching Scheme | | | Credits C | Examination Marks | | | | Total Marks |
|-----------------|---|---|--------------|-------------------|--------|-----------------|--------|----------------|
| L | T | P | | Theory Marks | | Practical Marks | | |
| | | | | ESE(E) | PA (M) | PA (V) | PA (I) | |
| 3 | 0 | 2 | 4 | 70 | 30 | 30 | 20 | 150 |

Content:

| Sr. No. | Content | Teaching Hours | Module Weightage (%) |
|---------|---|----------------|----------------------|
| 1 | OOP Concepts : Introduction OOP, Procedural Vs. Object Oriented Programming, Principles of OOP, Applications of OOP | 04 | 09 |
| 2 | Expression and Statements : Data types, Expression, control statements and Iteration, typecasting | 04 | 07 |
| 3 | Arrays and Functions : 1D and 2D arrays, passing data to functions, scope and visibility of variables in functions, inline function, default arguments | 06 | 14 |
| 4 | Classes : Basics of object and class in C++, access specifiers - private and public members, static data members, class scope, constructors and their types, destructors, operator overloading, scope operator | 08 | 18 |
| 5 | Overloading : Function overloading, Operator overloading, Type conversion | 04 | 09 |
| 6 | Inheritance : Concept of Inheritance, types of inheritance: single, multiple, multilevel, hierarchical, hybrid, protected members, overriding | 05 | 11 |
| 7 | Exception Handling : Introduction to exception, try-catch-throw, multiple catch, catch all, rethrowing exception, implementing user defined exceptions | 04 | 09 |
| 8 | I/O and File management : Concept of streams, cin and cout objects, C++ stream classes, Unformatted and formatted I/O, manipulators, File stream | 03 | 07 |
| 9 | Templates, Exceptions and STL: What is template? function templates and class templates, Introduction to exception, try-catchthrow, multiple catch, catch all, rethrowing exception, implementing user defined exceptions, Overview and use of Standard Template Library | 07 | 16 |

Reference Books:

- Object Oriented Programming in Turbo C++, Robert Lafore, Galgotia
- The Complete Reference C++, Herbert Schlitiz, TMH
- Object-Oriented Programming With C++, E Balagurusamy, TMH



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4. C++ Programming, Black Book, Steven Holzner, dreamtech
5. C++ Primer Stanley B Lippman, Josée Lajoie, Barbara E. Moo

Course Outcome:

1. Understand Object-Oriented Programming concepts and basic characteristics of C++
2. Differentiate between object-oriented and procedure-oriented methodology
3. Understand the concept of function and overloading
4. Know the principles of data encapsulation, inheritance, polymorphism, access specifiers, exceptions
5. Know the concept of streams

