

Course No.	Course Name	L-T-P	Credits	Year of Introduction
IT204	Object Oriented Techniques	3-0-0	3	2016

Prerequisite : Nil

Course Objectives

- To build an understanding of basic concepts of object oriented programming techniques
- To develop programming skills in C++ programming language
- To implement object oriented techniques using C++ language features.
- To develop software using object oriented programming paradigms

Syllabus

Characteristics of Object-Oriented Languages- Objects and Classes - Arrays and Strings - Operator Overloading – Overloading Unary Operators - Overloading Binary Operators - Arrays as Class Member Data - Inheritance – Derived Class and Base Class - Class Hierarchies - Public and Private Inheritance - Levels of Inheritance - Multiple Inheritance - Pointers - The Address-of Operator - Pointers and Arrays - Pointers and Functions - Memory Management - Pointers to Objects - Virtual Functions - Late Binding - Friend Functions - Static Functions - Assignment and Copy Initialization - The this Pointer - Streams and Files - Stream Classes - File Pointers - Templates and Exceptions - Function Templates - Class Templates - Exceptions

Expected Outcome

After the successful completion of the course students will be able to

- Explain Object Oriented Programming concepts.
- To understand the special features of C++ Programming language
- To upgrade existing procedure oriented softwares to object oriented based ones

References

1. Lafore R., Object Oriented Programming in C++, Galgotia Publications, 2001.
2. Schildt H., Teach Yourself C++, Tata McGraw Hill, 2000.
3. Hubbard J. R., Schaum's Outline of Programming with C++, McGraw Hill, 2000.
4. Balagurusamy, Object Oriented Programming with C++, Tata McGraw Hill, 2008.
5. Stephen D. R., C. Diggins, J. Turkanis and J. Cogswell, C ++ Cook book, O'Reilly Media, 2013.
6. Oualline S., Practical C++ Programming, 2/e, O'Reilly Media, 2002.
7. Meyers S., Effective C++, Addison Wesley, 2011. Error Control Coding Fundamentals and Applications: Prentice Hall Inc.

Module	Course Plan	Hours	% of Marks in End-Semester Examination
I	<p>Why Do We Need Object-Oriented Programming? - Procedural Languages - The Object-Oriented Approach - Characteristics of Object-Oriented Languages – Objects – Classes – Inheritance – Reusability - Creating New Data Types - Polymorphism and Overloading - C++ and C</p> <p>Objects and Classes - A Simple Class - Classes and Objects - Defining the Class - Using the Class - Calling Member Functions - C++ Objects as Physical Objects - C++ Objects as Data Types – Constructors – Destructors - Objects as Function Arguments - Overloaded Constructors - Member Functions Defined Outside the Class - Objects as Arguments - The Default Copy Constructor - Static Class Data - const and Classes</p>	7	15
II	<p>Arrays and Strings - Array Fundamentals - Arrays as Class Member Data - Arrays of Objects - The Standard C++ string Class</p> <p>Operator Overloading - Overloading Unary Operators - Overloading Binary Operators - Data Conversion</p>	6	15
FIRST INTERNAL EXAM			
III	<p>Inheritance - Derived Class and Base Class - Derived Class Constructors - Overriding Member Functions - Which Function Is Used?</p> <p>Class Hierarchies - Public and Private Inheritance - Levels of Inheritance - Multiple Inheritance</p>	7	15
IV	<p>Pointers - Addresses and Pointers - The Address-of Operator & - Pointers and Arrays</p> <p>Pointers and Functions - Memory Management: new and delete - Pointers to Objects</p>	8	15
SECOND INTERNAL EXAM			
V	<p>Virtual Functions - Friend Functions - Static Functions - Assignment and Copy Initialization - The this Pointer</p> <p>Streams and Files - Stream Classes - Stream Errors - Disk File I/O with Streams - File Pointers - File I/O with Member</p>	8	20

	Functions		
VI	Templates and Exceptions - Function Templates - Class Templates Exceptions - Exception Syntax - Multiple Exceptions - Exceptions with Arguments	7	20
END SEMESTER EXAM			

QUESTION PAPER PATTERN (End semester examination)

Maximum Marks : 100

Exam Duration: 3 Hrs

Part A – (Modules I and II) 2 out of 3 questions (uniformly covering the two module) are to be answered. Each question carries 15 marks and can have a maximum of 4 sub divisions

Part B – (Modules III and IV) 2 out of 3 questions (uniformly covering the two module) are to be answered. Each question carries 15 marks and can have a maximum of 4 sub divisions

Part C – (Modules V and VI) 2 out of 3 questions (uniformly covering the two module) are to be answered. Each question carries 20 marks and can have a maximum of 4 sub divisions

