

CP202: Object Oriented Programming with C++

Teaching Scheme			Credits	Marks Distribution				Total Marks
L	T	P	C	Theory Marks		Practical Marks		
				ESE	CE	ESE	CE	
3	0	2	5	70	30	30	20	150

Course Content:

Sr. No.	Topics	Teaching Hrs.
1	<u>Basics:</u> Introduction OOP; Procedural Vs. Object Oriented Programming; Principles of OOP; Benefits and applications of OOP; Program structure; namespace; identifiers; variables; constants; operators; typecasting; control structures.	04
2	<u>Objects and Classes:</u> Basics of object and class; Private and public members; static data and function members; constructors and their types; destructors; type conversion; new and delete operators. Arrays of objects; Reference variables.	10
3	<u>Functions and Inheritance:</u> Simple functions; Call and Return by reference; Inline functions; Macro Vs. Inline functions; operator overloading; Overloading of functions; default arguments; friend functions; Concept of Inheritance; types of inheritance: single; multiple; multilevel; hierarchical; hybrid; protected members; overriding; virtual base class.	10
4	<u>Dynamic Polymorphism:</u> Pointers and Objects; this pointer; virtual and pure virtual functions; Implementing dynamic polymorphism.	04
5	<u>I/O and File Management:</u> Concept of streams; cin and cout ; Overloading of inserter and extractor operators; C++ stream classes; Unformatted and formatted I/O; manipulators; File stream and C++ classes; File management functions; File modes; Binary and random Files.	06

6	<u>Exception Handling:</u>	06
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Review of traditional error handling; basics of exception handling; exception handling mechanism; throwing mechanism; catching mechanism; rethrowing an exception; specifying exceptions.

7	<u>Templates; STL and RTTI:</u>	05
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Introduction; need and use of templates; function templates and class templates; STL: Introduction; Containers; Algorithms and Iterators; RTTI: Introduction.

	Total Hrs.	45
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Reference Books:

1. E Balagurusamy, “*Object Oriented Programming with C++*”, TMH (E-book available on the BVM intranet).
2. Herbert Schlitz, “*The Compete Reference C++*”, TMH.
3. Deitel, “*C++: How to Program*”, PHI.
4. Ashok Kamthane, “*Object Oriented Programming with ANSI and Turbo C++*”, Pearson.
5. “*C++ and Object Oriented Programming Paradigm*”, PHI.
6. Saurav Sahay, “*Object Oriented Programming with C++*”, Oxford.