

**SARDAR PATEL UNIVERSITY**  
**B.Sc (CA & IT) – M.Sc (CA & IT) Dual Degree**  
**Semester - 3**  
**PS03CIIT21 : Computer Programming using C++**  
**(w.e.f June 2019)**

**Credits : 4**

**Exam Duration : 3hrs**

**Lectures per week : 4**

**All units carry equal weightage.**

Unit	Description in detail	Weightage (%)
I	<p><b>Object Oriented Programming (OOP) Concepts and Introduction to C++</b>            Structured programming vs. object oriented programming            Basic OOP concepts : objects , classes , encapsulation , data hiding , inheritance, polymorphism            Introduction to C++: structure of a C++ program , data types , variables, constants, expressions, statements and operators            Usage of header files            Control flow statements : if else, for loop, while loop, do while loop, switch, break and continue</p>	25%
II	<p><b>Input/Output, Arrays and Working with Classes</b>            Basic I/O in C++            Arrays in C++ : introduction, declaration, initialization of one , two and multidimensional arrays, operations on arrays            Working with strings : introduction, declaration, string manipulation and arrays of string            Classes and objects in C++            Constructors : default, parameterized, copy, constructor overloading and destructor            Access specifiers, implementing and accessing class members            Working with objects : constant objects, nameless objects, live objects, arrays of objects</p>	25%
III	<p><b>Functions, Function Overloading and Inheritance</b>            Introduction to functions, library and user-defined functions, parameters passing, default arguments            Functions overloading , inline functions, friend functions and virtual functions            Inheritance: Introduction, derived class declaration, forms of inheritance            Inheritance and member access ability, constructor and destructor in derived class, construction invocation and data member initialization.</p>	25%

IV	<b>Operator Overloading, Pointers and Files</b> Operator overloading : Introduction, overloaded operators, unary operator overloading, operator keyword, operator return values, binary operators overloading, overloading with friend function Dynamic memory allocation Files : introduction and applications File operations : open, read, write, seek and close	25%
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**Basic Text & Reference Books:-**

1. E Balagurusamy : Object Oriented Programming in C++, Tata McGraw-Hill Publishing Co. Ltd.
2. Robert Lafore : Object Oriented Programming in Turbo C++, Guide, Galgotia Pub. (P) Ltd.
3. Barkakati N. : Object Oriented Programming in C++, PHI.  
OOP's using C++ for Dummies.