

B. Sc. with IT as a Subject from 2020 & onwards: 3rd Semester				
Course	Credits-06		Total Marks- 90	
	Theory	Practical	Theory	Practical
BIT320C2: OOPS USING C++	04	02	60	30

THEORY: 4 CREDITS;

MAX. MARKS: 60

MIN. MARKS: 24

UNIT-I: Introduction to OOP and C++.

Introduction to object oriented approach (OOA) and object oriented programming (OOP), concept of object and class.

Features of OOP-Encapsulation, Abstraction, Inheritance and Polymorphism. Advantages of OOP over structured programming.

Introduction to C++ with general basic features of operators and control structure (if, if-else, switch-case, while, do-while, for, etc.)

UNIT-II: Classes, Objects and Functions.

Classes-specifying class, defining member functions and member variables, scope resolution operator, access specifiers and accessing class members, friend class, static class members.

Objects-Dynamic allocation operators (New and Delete), arrays of objects, object as function argument and functions returning objects, object assignment.

Functions-Inline functions, friend functions. Default arguments, reference variables.

Constructors-parameterized, multiple constructors in a class, copy constructor, destructor. Function overloading, operator overloading (unary, binary).

UNIT-III: Inheritance, Pointers and Polymorphism.

Inheritance-Defining derived classes. Inheritance types-single, multilevel, multiple, hierarchical and hybrid inheritance. Virtual base classes.

Pointers-Pointer to objects, this pointer, pointer to derived class.

Polymorphism-Virtual functions, pure virtual functions, abstract classes.

UNIT-IV: Templates and Exception Handling.

Templates-Overview, Generic functions and generic classes.

Exception handling-Introduction, the keywords (try, catch and throw), multiple catch statements, catching all exceptions, rethrowing an exception.

PRACTICAL: 2 CREDITS;

MAX. MARKS: 30

MIN. MARKS: 12

Note: The Practical Component shall be based on the Unit-I to Unit-IV

Books:

- 1 "Object oriented programming with C++" by E Balaguruswamy
- 2 "The complete reference C++" by Herbert Schildt
- 3 "Object oriented programming in C++" by Robert Lafore