GANPAT UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

Programme	Diploma Engineering		Branch	Computer Engineering	
Semester	III		Version	1.0.0.0	
Effective from Academic Year	2018-19		Effective for the batch Admitted in		June 2018
Subject code	1CE2302	Subject Name	Programming In C++		

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	0	2	0	5	Theory	40	60	100
Hours	3	0	4	0	7	Practical	60	40	100

Pre-requisites:
Basic Knowledge of C Programming

Course Learning Outcomes:

The course content should be taught and implemented with an aim to develop different skills leading to the achievement of the following competencies and course learning outcomes:

T1. Understand the features of C++ supporting object oriented programming

T2. Understand the relative merits of C++ as an object oriented programming language

T3. Understand how to apply the major object-oriented concepts to implement object oriented programs in C++, class, encapsulation, inheritance and polymorphism, Constructor, Destructor.

T4. Understand advanced features of C++ specifically stream I/O, templates and operator overloading

The practical should be carried out in such a manner that students are able to acquire different learning out comes in cognitive, psychomotor and affective domain to demonstrate course learning outcomes.

Course Content

Name of UNIT	Unit Content	Unit Learning Outcomes	Marks	Hrs
UNIT – 1 Concept of Object Oriented Programming	1.1. Types of Programming language: 1.1.1. Procedure oriented Programming 1.1.2. Object oriented programming 1.2. Basic concepts of Object Oriented Programming 1.3. Advantages of Object Oriented Programming 1.4. Applications of Object Oriented Programming	1.1. State different between programming languages. 1.2. Describe the basic concept of OOP. 1.3. State the advantages of OOP. 1.4. Describe the application of OOP.	6	4
UNIT – 2 Beginning With C++	2.1. C++ Concepts 2.2. Structure of C++ program, Applications of C++ 2.3. Data types in C++,User defined Data types, Derived Data types, 2.4. Defining Constant,	2.1. Describe the concept of C++. 2.2. State the structure of C++ program. 2.3. Describe the data types. 2.4. Describe the Constant in C++.	6	4

	2.5. Declaration of variables and Dynamic initialization of variables, Reference variables 2.6. Arrays	2.5. State the declaration of variables and reference variables. 2.6. Describe and use of the arrays.		
UNIT – 3 Operators, loop and Condition	3.1. Operators in C++ 3.2. Scope Resolution Operators 3.3. Member dereferencing Operators 3.4. Memory Management Operators and Manipulators 3.5. Type cast Operator 3.6. Loops ,Conditioning statements	3.1. List and Explain Operators in C++. 3.2. State and use of Scope resolution operator. 3.3. Describe the use of the member dereferencing operator. 3.4. Describe the memory manipulation operators. 3.5. Describe and state the use of type casting operators. 3.6. Describe the control Statements.	6	5
UNIT – 4 Function in C++	4.1. The Main Function 4.2. Function prototyping 4.3. Types of Function 4.4. Call by Reference and Return by Reference, 4.5. Inline function, 4.6. Default Arguments, Constant Arguments, 4.7. Function Overloading,	4.1. Describe the main function of C++ Program. 4.2. State the Function prototypes. 4.3. State the types of Functions in C++ 4.4. State and differentiate Call by value and call by reference. 4.5. Describe the Inline functions. 4.6. Classify Default and Constant arguments. 4.7. Describe and use of the function overloading.	8	4
UNIT – 5 Class and Objects	5.1. Defining Class and Creating Objects 5.2. Memory Allocation for Objects, 5.3. Defining Member function, Access Modifier, Static Data member and Static Member functions 5.4. Array of Objects 5.5. Passing Objects as an Argument, Returning Object 5.6. Friend function	5.1. Describe class and create the class. 5.2. State how the memory is allocated to objects. 5.3. Implements member functions, access modifier and static member and function. 5.4. Describe and state the user of array of objects. 5.5. Describe the use of Objects as an arguments and return as an objects. 5.6. State the friend function.	10	8

UNIT – 6 Constructor and Destructor	6.1. Constructor Concepts 6.2. Destructor 6.3. Parameterized Constructor, Multiple Constructors in a Class 6.4. Constructor with Default Arguments 6.5. Copy Constructor, 6.6. Dynamic constructor, 'this' Pointer	6.1. Describe the constructor. 6.2. Describe the Destructor. 6.3. Describe and state the use of parameterised and multiple constructor 6.4. Implements the constructor with default arguments. 6.5. Describe and implements the copy constructor. 6.6. Implement dynamic constructor and this pointer.	12	7
UNIT – 7 Inheritance	7.1. Concepts of Inheritance 7.2. Defining Derived Classes, 7.3. Single Inheritance 7.4. Making a Private Member Inherited 7.5. Types 7.5.1.Multiple Inheritance 7.5.2.Multilevel Inheritance, 7.5.3.Hybrid Inheritance, 7.5.4.Hierarchical 7.6. Virtual Base Class, Abstract Classes, Virtual Functions	7.1. State the concept of the inheritance. 7.2. Describe the derived class. 7.3. Implement single inheritance. 7.4. Describe how private member function can be inherited. 7.5. Classify different inheritance. 7.6. Describe virtual base class, abstract class and virtual functions.	8	8
UNIT – 8 Console I/O Operations	8.1. Input and Output Streams 8.2. Unformulated and formatted I/O Operations, 8.3. Formatting with Manipulators	8.1. Describe the IO stream classes in C++ 8.2. Implements IO operations. 8.3. Describe manipulators.	4	5

List of Practical		
No.	UNIT	Name of Practical
1	UNIT 2	Build C++ program to display Hello
2	UNIT 2	Develop program which demonstrate the use of data types.
3	UNIT 2	Develop minimum 2 programs using arrays.
4	UNIT 3	Develop C++ program for Operators.
5	UNIT 3	Develop minimum 5 programs using control structures.
6	UNIT 2	Develop programs using reference variable, scope resolution operator, simple manipulators, and number data type.
7	UNIT 4	Develop programs using call by reference and return by reference, default arguments, constant arguments, and function overloading.

8	UNIT 5	Define minimum 5 different classes.
9	UNIT 5	Develop Programs using array of objects and static member functions.
10	UNIT 5	Develop programs to pass object as an argument and returning object.
11	UNIT 6	Develop programs using various types of constructors and destructor.
12	UNIT 7	Develop programs using single, multilevel, multiple inheritance.
13	UNIT 7	Develop programs using pointer to derived classes
14	UNIT 8	Develop programs using unformatted i/o functions
15	UNIT 8	Develop programs using formatted i/o functions

List of Instruments / Equipment / Trainer Board	
1	C++ Compiler
2	Computer System with latest configuration.

List of Reference Books

No	Title of Reference Books	Authors	Publication
1	Object Oriented Programming with C++	E BalaguruSami	McGrawHills
2	Object Oriented Programming in Turbo C++	Robert Lafore	Galgotia
3	Programming in C++	Kamthane	Pearson

Link of Learning Web Resource	
1	https://www.studytonight.com/cpp/
2	https://www.w3schools.in/cplusplus-tutorial/
3	https://www.javatpoint.com/cpp-tutorial