

Semester Scheme B.Tech. (CSE) 1st TO 8TH SEMESTER 2023-24 ONWARDS

Course Name	:	Object Oriented Programming
Course Code	:	CSN 3004
Credits	:	4
L T P	:	3 0 2

Course Objectives:

- To differentiate between procedure-oriented programming and object-oriented programming and to specify simple abstract data types
- To recognize features of object-oriented design such as encapsulation, polymorphism, inheritance and composition of systems based on object identity.
- To use object-oriented programming language like C++ and associated library to develop object-oriented programs.
- To understand and to use basic fundamentals of object-oriented programming.

Total No. of Lectures – 42

Lecture wise breakup		Number of Lectures
Unit 1	Introduction to Object Oriented Programming and Design Abstraction, Object, Encapsulation, Information hiding, Method, Signature, Classes and Instances, Polymorphism, Inheritance.	5
Unit 2	Programming Basics Fundamentals: Variables and assignments, Input and Output, Data Types and Expressions, Flow of control, Subprograms: Top down design, Predefined functions, user defined functions, Procedural abstractions, Local variables, Parameter passing, arrays.	5
Unit 3	Classes Defining classes and member functions, public and private members ,constructors for initializations, destructors, copy constructors, static functions, friend functions, this pointer.	8
Unit 4	Overloading Overloading unary operations, Overloading binary operators, Overloading the assignment operator, data conversion, pitfalls of operator overloading and conversion.	5
Unit 5	Inheritance Concept of inheritance, derived class and based class, derived class constructors, member function, class hierarchies, types of inheritance, aggregation: Classes within classes.	7
Unit 6	Pointers and virtual functions The address of operator, pointer, dynamic memory management- new and delete, pointers to objects, virtual function, Assignment and copy initialization	7

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Unit 7	Stream and Classes Streams classes, Stream Errors, Disk File I/O with streams, file pointers.	5
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List of Experiments:		Number of Turns
1.	Program to define the data types, variable, operators, arrays and control structures.	2
2.	Program to define class and constructors and demonstrate constructors.	2
3.	Program to define class, methods and objects and demonstrate method overloading.	2
4.	Program to define inheritance and show method overriding.	2
5.	Program to demonstrate run time polymorphism	2
6.	Program to demonstrate Exception Handling	2
7.	Program to demonstrate I/O operations	2

Course Outcomes: At the end of the course, students will be able to:	
1	Able to differentiate between structure oriented programming and object oriented programming and to specify simple abstract data types and design implementations
2	Recognize features of object-oriented design such as encapsulation, polymorphism, inheritance and composition of systems based on object identity.
3	Able to use object oriented programming language like C++ and associated library to develop object oriented programs
4	Able to understand and to use basic fundamentals of object oriented programming

Text Book:		
Sr. No.	Name of Book/ Authors/ Publisher	Year of Publication / Reprint
1.	Herb Schildt: C++ - The Complete Reference, TMH, Delhi	1998
Reference Books:		
Sr. No.	Name of Book/ Authors/ Publisher	Year of Publication / Reprint
1.	R.Venugopal :Mastering C++,TMH, Delhi	2015
2.	Bruce Eckel : Thinking in C++ Volume I , Pearson Education, Delhi.	2000
3.	Horstmann: Computing Concepts with C++ Essentials, John Wiley.	2004

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Equivalent MOOCs courses:

Sr. No.	Course Links	Offered by
1.	https://archive.nptel.ac.in/courses/106/105/106105151/	NPTEL
2.	https://www.coursera.org/learn/concepts-of-object-oriented-programming	Coursera
3.	https://www.coursera.org/specializations/object-oriented-programming-s12n	Coursera

Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs):

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	1	1	1	-	-	1	1	1	-	2	1	-	-
CO2	3	3	3	1	1	-	-	1	2	1	-	2	1	-	-
CO3	2	2	3	1	1	-	-	1	1	1	-	2	3	1	-
CO4	3	1	3	1	1	-	-	1	2	1	-	2	1		-

1-Low, 2-Medium, 3-High