

COURSE CODE	COURSE TITLE	L	T	P	C
1151IT104	Object Oriented Programming	3	0	0	3

Course Category: Program Core

a. Preamble :

This course provides an introduction to Object Oriented Programming concepts using C++. The course emphasis is on the object orientated facilities of C++ and how they can be used to create modular and re-usable code. Object-Oriented Software Development is an approach/paradigm of developing software by identifying and implementing a set of objects and their interactions to meet the desired objectives. The first step towards this kind of software development is to learn and master the various concepts, tools and techniques that are to be used design and implementation of such systems

b. Prerequisite Courses:

Sl. No	Course Code	Course Name
1	1150CS201	Problem Solving using C

c. Related Courses:

Sl. No	Course Code	Course Name
1	1152IT121	JAVA Design Pattern

d. Course Outcomes :

Upon the successful completion of the course, students will be able to:

CO Nos.	Course Outcomes	Knowledge Level (Based on revised Bloom's Taxonomy)
CO1	Explain the concepts of object-oriented programming and basic structure of C++ programming	K2, S3
CO2	Apply the concept of constructor and destructor for given problem in C++.	K3, S3
CO3	Demonstrate the template and exception handling for simple and complex programs.	K2, S3
CO4	Construct the C++ program, by using various inheritance concepts and virtual function for given problem.	K3, S3
CO5	Discuss various File IO stream, RTTI, and standards template library.	K2, S3

e. Correlation of COs with POs :

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	M		M		L							
CO2	M		M		L							

CO3	M		M		L								
CO4	M		M		L								
CO5	M		M		L								

H- High; M-Medium; L-Low

f. Course Content :

UNIT I 9

Object oriented programming concepts – objects – classes – methods and messages – abstraction and encapsulation – inheritance – abstract classes – polymorphism. Introduction to C++ – classes – access specifiers – function and data members – default arguments – function overloading – friend functions – const and volatile functions - static members – Objects – pointers and objects – constant objects – nested classes – local classes

UNIT II 9

Constructors – default constructor – Parameterized constructors – Constructor with dynamic allocation – copy constructor – destructors – operator overloading – overloading through friend functions – overloading the assignment operator – type conversion – explicit constructors

UNIT III 9

Function and class templates - Exception handling – try-catch-throw paradigm – exception specification – terminate and unexpected functions – Uncaught exception.

UNIT IV 8

Inheritance – public, private, and protected derivations – multiple inheritance - virtual base class – abstract class – composite objects Runtime polymorphism – virtual functions – pure virtual functions.

UNIT V 10

RTTI – typeid – dynamic casting – RTTI and templates – cross casting – down casting.Streams and formatted I/O – I/O manipulators - file handling – random access – object serialization – namespaces - std namespace – ANSI String Objects – standard template library.

g. Learning Resources

i.Text Books :

1. B. Trivedi, "Programming with ANSI C++", Oxford University Press, 2012.

ii.Reference:

1. Goran Svenk, "Object-oriented Programming: Using C++ for Engineering and Technology" Second Edition 2003.
2. Balagurusamy, "Object-oriented Programming with C++" Tata McGraw-Hill Education, Fourth Edition 2008
3. DEBASISH JANA, "C++ AND OBJECT-ORIENTED PROGRAMMING PARADIGM, Eastern Economy Edition, Second Edition OCT 2005.
4. Ira Pohl, "Object Oriented Programming using C++", Pearson Education, Second Edition Reprint 2004.
5. B. Lippman, Josee Lajoie, Barbara E. Moo, "C++ Primer", Fourth Edition, Pearson Education, 2005.
6. Stroustrup, "The C++ Programming language", Third edition, Pearson Education, 2004

iii. Online resources

- www.tutorialspoint.com/cplusplus/cpp_object_oriented.htm
- https://www.cs.virginia.edu/~knabe/.../c++/c++_3.h...
- www.cplusplus.com/doc/tutorial/
- www.mamcet.com/it/e-learning/3sem/cs1202/lecturenotes-cs1202.pdf