DEPARTMENT OF COMPUTER APPLICATIONS

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

Course Title	OBJECT ORIENTED PROGRAMMING		
Course Code	CA716	No. of Credits	3
Department	Computer Applications	Faculty	Dr. S.Sangeetha
Pre-requisites Course Code	CA711 PROBLEM SOLVING AND PROGRAMMING		
Course Teacher(s)/Tutor(s) E-mail	sangeetha@nitt.edu	Telephone No.	0431-2503743
Course Type	Core course		

COURSE OVERVIEW

This course introduces the concepts of object-oriented programming to students with a background in the procedural paradigm. It provides in-depth coverage of object-oriented programming principles and techniques using C++. It starts with creation of individual classes, objects with information hiding, constructors and destructors. The course then deals with the concept of function and operator overloading, type conversion among classes. It then explains linking of individual classes using inheritance and composition. The course also deals with creation of templates, writing exception classes, storage and retrieval of objects to/from files.

COURSE OBJECTIVES

- **To learn the basic principles of object-oriented programming paradigm**
- **To implement object-oriented programming concepts using C++.**
- **To perform object oriented analysis on a given problem to design and develop a system in C++.**

Course Outcomes	Aligned Programme Outcomes (PO)
• Identify classes with attributes and functions for given problem	1,2
• Analyze the relationship between the classes link them using appropriate concepts	1,2,5
• Design and implement abstract data types.	1,2,3,5
• Devise generic classes capable of manipulating primitive and user defined data types.	1,3
• Perform object oriented analysis on a given problem and design a complete system to solve it.	2,3,5,8

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week	Topic	Mode of Delivery
1	1	Introduction to OOP, Comparison with Procedural Programming, Syntax based differences between C and C++	**Theory** - chalk and Talk **Tutorial** - Problem solving
2	2	Constructors and destructors Static members.	-do-
3	3	Friend Functions and classes, Dynamic memory allocation	-do-
4	4	Polymorphism-Function overloading , operator overloading - Unary, binary	-do-
5	5	Type conversion of used defined types, Constant object and mutable member, Namespaces.	-do-
6	6	Composition , Inheritance and its types Linking classes using composition & Inheritance. Access specifiers and accessibility of class members in other classes.	-do-
7	7	Virtual Functions , Abstract Classes Pointers and Objects	-do-
8	8	Exception handling- Basics, Built-in exceptions User defined exceptions	-do-
9	9	Template- Introduction, Class template –using primitive &used defined data types ,Function template –using primitive &used defined data types	-do-
10	10	Files and Streams Character I/O , Object I/O, Error handling in files	-do-
11	11	STL Introduction, Containers, Algorithms	-do-

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Test 1	Week 4	1 Hr	20
2	Test 2	Week 8	1 Hr	20
3	Assignment	Week 6	1 week	10
4	Semester	At the end of course	3 hrs	50

ESSENTIAL READINGS :

1. Stephen Prata,"C++ Primer Plus", 6th Edition ,Addison-Wesley Professional, 2011
2. Bjarne Stroustrup, "Programming: Principles and Practice Using C++,1st Edition, Addison-Wesley Professional, 2008
3. Andrew Koenig and Barbara E. Moo, "Accelerated C++: Practical Programming by Example", 1st Edition, Addison-Wesley Professional, 2000
4. Bruce Eckel ,"Thinking in C++: Introduction to Standard C++: Volume One" 2nd Edition, Prentice Hall, 2000
5. Andrei Alexandrescu , "Modern C++ Design: Generic Programming and Design Patterns Applied" , 1st Edition, Addison-Wesley Professional, 2001

COURSE EXIT SURVEY (mention the ways in which the feedback about the course is assessed and indicate the attainment also)

- The students through the class representative may give their feedback at any time to the course faculty which will be duly addressed.
- The students may also give their feedback during Class Committee meeting.
- The COs will be computed after arriving at the final marks.

COURSE POLICY (including plagiarism, academic honesty, attendance, etc.)

- **Plagiarism**
  The students are expected to come out with their original solution for problems given as assignment, and tests/examinations.
- **Attendance**
  100% is a must. However, relaxation upto 25% will be given for leave on emergency requirements (medical, death, etc.) and representing institute events.

ADDITIONAL COURSE INFORMATION

The Course Coordinator is available for consultation office from 4 pm to 5 pm on Monday and Tuesday every week.

FOR SENATE'S CONSIDERATION

Course Faculty _____ **CC-Chairperson** _____ **HOD** _____