

Semester	<b>2 – C1CS230212T</b>
Course	<b>Major</b>
Paper Title	<b>OBJECT ORIENTED PROGRAMMING CONCEPTS</b>
No. of Credits	<b>4</b>
Theory/ Practical / Composite	<b>Composite</b>
Minimum No. of preparatory hours per week a student has to devote	5
Number of Modules	One
Syllabus	<ol style="list-style-type: none"> <li>1. Concepts and Characteristics of OOPS, Differences with Procedural Programming.</li> <li>2. Encapsulation, Abstraction, Polymorphism, Classes, Messages Association, Interfaces.</li> <li>3. Constructor, Destructor, Copy constructor, Structures and classes objects and memory static class data.</li> <li>4. Friend function, friend class, ‘this’ pointer.</li> <li>5. Function overloading.</li> <li>6. Overloading unary operators, Overloading binary operators, data conversion.</li> <li>7. Concept of inheritance, Base and Derived classes, Types of Inheritance, Aggregation.</li> <li>8. Dynamic Polymorphism.</li> <li>9. Function templates, Class templates</li> <li>10. Exception Handling.</li> </ol>
Learning Outcomes	<ol style="list-style-type: none"> <li>1. Understand object oriented programming and its differences with procedure oriented programming</li> <li>2. Study various characteristics of object oriented paradigm, like data abstraction, encapsulation, polymorphism, inheritance</li> <li>3. Understand the fundamental concepts of exception handling</li> <li>4. Utilize the bottom-up approach to solve real world problems</li> </ol>
Reading/Reference Lists	<ol style="list-style-type: none"> <li>1. Object Oriented Programming in C++ by Robert Lafore, Sams Publishing</li> <li>2. C++ The Complete Reference by Herbert Schildt, McGraw Hill Publication</li> <li>3. Object Oriented Programming with C++ by Saurav Sahay,</li> </ol>

	<p>Oxford University Press</p> <p>4. Object Oriented Programming and C++ by R. Rajaram, New Age International Publishers</p> <p>5. Object Oriented Programming with C++ by E. Balaguruswamy, McGraw Hill Publication</p> <p>6. NPTEL course on Programming in C++ by Dr. Partha Pratim Das, IIT Khargpur; course link: <a href="https://youtu.be/LZFoktwiars">https://youtu.be/LZFoktwiars</a></p>	
Evaluation	<p>Theory</p> <p>CIA: 12</p> <p>Attendance: 3</p> <p>Semester Exam: 45</p>	<p>Practical <b>C1CS230212P</b></p> <p>CA: 38</p> <p>Attendance: 2</p>
Paper Structure for Theory Semester Exam	Answer 3 out of 5 of 15 marks each	