# Computer Science and Engineering

## Subject Name: Object Oriented Programming Using Java

**Recommended Pre-requisite:** Computer Programming

**COURSE OUTCOMES:**

**CO1:**Identify classes, methods, and libraries of object-oriented programming using Java.

**CO2:**Design and implement a class based on attributes and behavior of objects.

**CO3:**Design exception handling, threads, and utilities for problem solving using Java.

**CO4:**Analyze and design Java programs using advanced features such as AWT, Applet, Swing and Socket.

**CO5:**Design and implementation of different design patterns using Java.

**Course Details:**

1. Introduction, Compiling & executing a java program.
2. Data types & variables, decision control structures: if, nested if etc. loop control structures: do, while, for etc.
3. Classes and objects.
4. data abstraction & data hiding, inheritance.
5. Interfaces and inner classes.
6. Exception handlings.
7. Threads.
8. Applet, Swing and event handling.
9. Wrapper classes, String, I/O programs.
10. Collection framework and JDBC.

**List of Practicals:**

**Experiment No. 1:** Basic java programs
a. developing
b. compiling
c. executing

**Experiment No. 2:** Programs to Understand Different Loop and method Concept.
**a. Method overloading**
**b. Implementation of different loops**
**c. Implementation of Function with default arguments**

**Experiment No. 3:** Program to understand class and object.
a. Program to differentiate between class and object.
b. Program to implement array of objects.
c. Implementation of static data members and member methods.

**Experiment No. 4:** Programs to understand data abstraction & data hiding, inheritance.

a. Single Inheritance
b. Multiple Inheritance
c. Super keyword

**Experiment No. 5:** Program to implement interfaces and inner classes

a. Nested and inner class
b. Implementing interfaces
c. Dynamic method dispatch

**Experiment No. 6:** Programs to implement exception handlings try, catch and throw

a. throw vs throws
b. finally
c. user defined exceptions

**Experiment No. 7:** Programs to implement Threads

a. ways of creating threads
b. creating multiple threads
c. join(), isAlive(),wait(),notify().
d. Synchronizing threads

**Experiment No. 8:** Program to implement Applet, Swing, Event handling programs

a. ways of running applet programs
b. Creation of Form and Panel

**Experiment No. 9:** Program to implement wrapper classes, String, I/O programs

a. Use of wrapper classes
b. Use of different string methods
c. I/O programs

**Experiment No. 10:** Programs to implement collection framework and JDBC.

a. Programs on list and set.
b. Program on JDBC.