



**CHRIST**  
(DEEMED TO BE UNIVERSITY)  
BANGALORE · INDIA

## DEPARTMENT - COMPUTER SCIENCE

### Course Pack FOR OBJECT ORIENTED PROGRAMMING USING JAVA-CSC431

#### CSC431 - OBJECT ORIENTED PROGRAMMING USING JAVA

Total Teaching Hours For Semester : 60

Total Teaching Hours For Semester : 4

Max Marks : 100

Credits : 4

#### Course Objectives/Course Description:

The Course objective is to expose the students with the introduction to OOPs and advantages of object oriented programming. The concepts of OOPs make it easy to represent real world entities. The course introduces the concepts of converting the real time problems into objects and methods and their interaction with one another to attain a solution. Simultaneously it provides the syntax of programming language Java for solving the real world problems.

#### Learning Outcome

•The students are introduced to basics of object oriented programming. •Have the competence and the development of small to medium sized application programs that demonstrate professionally acceptable coding.

#### Unit-1

Teaching Hours:12

#### Introduction to OOPs and Java

OOPs - Problems in Procedure Oriented Approach-Features of Object Oriented Programming System-Class / Object-Encapsulation-Abstraction-Inheritance - Polymorphism. Benefits of OOPs, Applications of OOPs.Introduction to JavaHistory-Features of Java-Java and the Internet-How Java differs from C and C++-Java Environment-Structure of Java Program-Java Virtual Machine-Data Types-Constants-Variables-Declaration of variables-Giving values to variables-Scope of variables-Symbolic constants- Literals. Operators-Arithmetic, Boolean logical, Relational and Bitwise operators-Operator Precedence.

#### Unit-2

Teaching Hours:12

#### Classes and String Handling

Classes and Objects - General form of a class-Declaring objects-Accessing class members- Constructors-Parameterized constructors-Overloading constructors-Defining methods- Overloading methods-Returning a value-Recursion-Introducing Access Control-Understanding static-Introducing Final-Garbage collection-finalize() method-this keyword.

#### Unit-3

Teaching Hours:12

#### Arrays and Inheritance

**Arrays**Introduction toArrays, OneDimensionalArrays,CreationofArrays,ArrayIntialization, Multidimensional Arrays, arrayname.length, Command LineArguments.**Inheritance**Basics-Member Access and Inheritance- Super class variable referring to a sub class- Applications of keywordsuper-CreatingaMultilevelHierarchy-Orderof callingconstructors- MethodOverriding-Dynamicmethoddispatch-Abstractclasses-Usingfinalwith Inheritance. Defining an Interface - Implementing interfaces-Variables ininterfaces-Extendinginterfaces.

#### Unit-4

Teaching Hours:12

#### Exception And Multithreading

Introduction-Types of errors –Exception-Uncaught Exceptions - try and catch - Multiple catch - Nested Try

- throw, throws and finally-Built-in Exceptions-User Defined Exception. Multithreaded Programming – Creating Threads-Life cycle of a Thread- Thread Priorities Synchronization-Inter thread communication- Deadlocks of thread-Avoiding deadlocks in a program –Daemon Threads-Application of Threads.

Unit-5 Teaching Hours:12

**IO Package**

I/O Basics-Streams-Byte Streams-Input Stream classes-Output Stream Classes, Character Streams-Reader Stream classes-Writer Stream classes.Self Learning Data types, Operators, Arrays

**Text Books And Reference Books:**

[1] E. Balagurusamy, Programming with JAVA a Primer, 4th Edition, Tata McGraw-Hill , Publishing Company Limited, Delhi, 2010.[2] Dr.Rao, Nageswara , Core Java: An Integrated Approach, Kongent Solutions Inc, 2009.

**Essential Reading / Recommended Reading:**

[1] Schildt Herbert, Java: The Complete Reference, 8th Edition, Tata McGraw- Hill, 2011.

**Additional Information**

**Evaluation of the Course**The student evaluation of the course, where they give their feedback with regard to their engagement with the texts, objectives of the course and learning outcomes, could be gathered twice in the duration of the course; For the first time in the middle of the course, and for the second time at the end of the course with the help of a checklist or rating scale. This could be done either manually or online.

**Evaluation Pattern**

Component	Marks
CIA I	10
Mid Semester Examination CIA II	25
CIA III	10
Attendance	5
End Semester Exam	50
Total	100