GIRIJANANDACHOWDHURYUNIVERSITY
Hathkhowapara,Azara,Guwahati - 781017,Assam

Course Code	Course Title	Hours Per Week L-T-P	Course Type	Credit
BCA23 201T	Object Oriented Programming	3-0-0	DSCC	3

Prerequisite: Introduction to Programming

Course Objectives:

1. *Introduce the fundamental concepts of Object-Oriented Programming (OOP) and the methodologies of OOP-based software development.*
2. *Demonstrate OOP concepts and techniques using Java, a class-based and fully object-oriented language.*
3. *Develop students' understanding of OOP syntax, structure, and the design logic behind object-oriented programming.*
4. *Equip students with the basic knowledge and skills necessary to apply object-oriented programming in software development using Java..*

Course Outcomes:

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

1. **Explain** *and* **differentiate** *core Object-Oriented Programming concepts and Java-specific programming principles.*
2. **Implement** *object-oriented solutions to real-world problems.*
3. **Integrate** *exception handling and multithreading to develop robust and efficient applications.*
4. **Utilize** *Java packages to organize code effectively and* **manage** *project structure.*
5. **Create** *graphical user interfaces (GUIs) using Java applets for interactive applications.*

Module	Topic	Course Content	Hours
I	**Introduction**	Java's History, Importance of Java for the Internet, Java's Magic : Byte-code, Its Features Java Virtual Machine Concepts, Primitive Data Type And Variables, Java Operators, Expressions, Statements and Arrays.	8
II	**Classes and Object**	Class and Objects:-Class Fundamentals, Creating objects, Assigning object reference variables; Introducing Methods, static methods, Constructors and types of constructor, Overloading constructors; *this* Keyword; Using Objects as Parameters, Argument passing, Returning objects, Method overloading.	10
III	**Inheritance**	Inheritance Basics, Access Control, Multilevel inheritance, Method Overriding, Abstract Classes, Polymorphism, *final* keyword	7
IV	**Packages, Abstract Class and Interface**	Defining Package, CLASSPATH, Package naming, Accessibility of Packages, using package members. Interfaces: Implementing Interfaces, Interface and Abstract Classes Exceptions Handling: Exception , Handling of Exception, Using try- catch, Catching multiple exceptions , Using finally clause , Types of Exceptions, Throwing Exceptions	10
V	**Multithreading and Applet**	**Multithreading Programming:** The Java Thread Model, Understanding Threads, Creating a Thread, Creating Multiple Threads, Thread Priorities. **Creating Applets in Java:** Applet Basics, Applet Architecture, Applet Life Cycle, Simple Applet Display Methods, The HTML APPLET Tag Passing Parameters to Applets.,	10
Total			45

Text Books and references:

1.	E. Balaguruswami, **Programming with Java**, Second Edition, Tata McGraw-Hill Publication
2.	Herbert Schildt, **The Complete Reference Java 2**, Fifth Edition, Tata McGraw-Hill Publication