FACULTY OF COMPUTER APPLICATIONS
Bachelor of Computer Applications

- **Sem.** : 3
- **Subject Code** : 05BC3306
- **Subject** : Programming in Java
- **Course Objectives** :
    1. To develop proficiency in creating console based applications using Java Programming Language.
    2. To interpret the concepts of OOP using java.
    3. To implement multi-threaded applications in Java Programming Language.
    4. To understand and implement working of File Handling in Java.
    5. To develop console based applications through Database connectivity.

- **Prerequisites** : Knowledge of C and C++ languages.

Unit No	Topics Covered	No of lectures required

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1	**Introduction to Java and OOP :** Features of the Java Language, Object-oriented Programming Creating an Application in Java Compiling and executing Applications in Java Program comments Primitive data types Data Types Scanner Class Operators Type Casting Arrays, single and multi-dimensional arrays Other reference types, classes, interfaces, enums and annotations Unicode escapes in Java source code Understanding super types and sub types Understanding the narrowing and widening Statements-if, if-else, switch-case, for, while, do-while, break, continue and return statements. Members of a class Garbage collector and finalize method Static variables and methods Initializer blocks & Class Initializer blocks	**6**
2	**Inheritance and Packages :** Types of Inheritance Object Class Defining Subclass Access Specifiers Use of Super Keyword Constructor Overloading Method Overloading and Overriding Use of Abstract and Final Keyword Interface Introduction to Packages Normal import and Static Import String, String Buffer and String Builder Classes from java.lang package. Creating and using User Defined Package and Sub Package Use of ClassPath	**6**
3	**Exception Handling :** Introduction to Exception Handling Use of Try, Catch, Finally, Throw and Throws keywords Creation of User Defined Exception Checked and Unchecked Exceptions	**6**

4	**Multi Threading** Introduction to Multithreading Thread Life Cycle Creation of new thread in two different ways Synchronization Thread Groups	**6**
5	**Database Connectivity in Java :** Introduction to JDBC JDBC Configuration Driver .jar Files Connecting to the Database Working with Statements Resultsets Prepared Statement	**6**

Course Outcomes:

1. Describe the basic concepts of OOP with Java
2. Construct console based applications using java
3. Determine how to use Exception handling mechanism in java
4. Determine how to use Multithreading in Java
5. Construct applications based on Database Connectivity.

Course Outcomes – Program Outcomes Mapping Table:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H	H	M		H			L
CO2					H			H
CO3					H			H
CO4	H					L	M	
CO5			H	H		H		

Text Book:

1. **Java : The complete reference, 12th Edition by Herbert Schildt**
2. **Cay S. Horstmann "Core Java Volume 1 – Fundamentals", Twelfth Edition, Oracle Press**

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Reference Books:

1. Ivor Horton's "Beginning Java 2" JDK 5 Edition, Wiley Computer Publishing, (2007).
2. Ken Arnold, James Gosling, David Holmes, "The Java Programming Language", Addison- Wesley Pearson Education (4th Edition – 2005).
3. Raj Kumar Buyya, S. ThamaraiSelvi, & Xing Chen Chu, "Object-Oriented Programming with Java: Essentials & Applications", Tata McGraw Hill
4. Cay Horstmann, "Big Java", Wiley Computer publishing (2nd edition – 2006).
5. Hari Mohan Pandey, "Java Programming", Pearson
6. SharanZakhour, Scott Hommel, Jacob Royal, Isaac Rabinovitch, Tom Risser, Mark Hoeber
7. "The Java Tutorial", Addison-Wesley Pearson Education(4th Edition)
8. Pravin Jain, "The Class of Java", Pearson Education.

Web References :

1. www.javatpoint.com
2. www.java2s.com
3. www.roseindia.net

App References :

1. Codegym
2. Easy Coder

Syllabus Coverage from text /reference book & web/app reference:

Unit #	Chapter Numbers
1	Chapter1 to 6
2	Chapter7 to 9 and15
3	Chapter10,17,18
4	Chapter11,13, 19
5	Chapter21 to 25 and Chapter7,9 from Text book No.2

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PRACTICALS

Unit No	List of Practicals
1	1. Write a simple java program to display message. 2. Write a java program to get a name from user and display on screen. 3. Write a java program to get personal information from user and display on screen. 4. Write a java program to perform different arithmetic operations. (Using Command Line args) 5. Write a java program to get different values from user at runtime using Scanner. 6. Write a java program to get the name from user and print 10 times using loop. 7. Write a java program to use IF Condition 8. Write a java program to find ODD or EVEN number using command line argument 9. Write a java program to find out students result/grade using IF condition. 10. Write a java program of 1D array
2	11. Write a java program to use Interface in java 12. Write a java program to extend one interface into another interface 13. Write a java program to perform simple inheritance. 14. Write a java program to use multilevel inheritance. 15. Write a java program to use Hierarchical inheritance 16. Write a java program to use Abstract class 17. Write a java program to use interface 18. Write a java program to use Multiple inheritance using interface. 19. Write a java program to use method overriding 20. Write a java program to perform overriding of abstract class 21. Write a java program to demonstrate encapsulation

3	22 Write a java program to implement simple exception handling 23 Write a java program to implement Arithmetic Exception 24 Write a java program to use Finally block in Exception Handling 25 Write a java program to use Multiple Catch Block 26 Write a java program to use Throw Keyword 27 Write a java program to use Throws Keyword 28 Write a java program to implement custom exception 29 Write a java program to implement Exception Propagation 30 Write a java program to implement Exception Chaining 31 Write a java program to use simple inner class in your program 32 Write a java program to use Static Inner Class 33 Write a java program to use Local Inner Class 34 Write a java program to use Nested Interface 35 Write a java program to display date in different format 36 Write a java program to display different calendar information using calendar class 37 Write a java program to add, subtract a days/month into current date and time 38 Write a java program to use Gregorian calendar to display calendar information
4	39. Write a java program to create a thread using Thread Class 40. Write a java program to create a thread using Runnable class 41. Write a java program to set Thread name and priority & test it. 42. Write a java program to create two threads and make them Synchronized (Thread Safe) 43. Write a java program to join two threads which perform loop operations.
5	44. Write a JDBC program to Insert data into Oracle Table 45. Write a JDBC program to Display data into Oracle Table 46. Write a JDBC program to Update data into Oracle Table 47. Write a JDBC program to Delete data into Oracle Table 48. Write a JDBC program to Insert Records Into Oracle Table Using Prepared Statement. 49. Write a JDBC program to Display Records Into Oracle Table Using Prepared Statement. 50. Write a JDBC program to Update and Delete Records Into Oracle Table Using Prepared Statement.