

Branch Name:	BCA (Bachelor of Computer Application)
Program Code:	CS101
Course Title :	PROGRAMMING WITH JAVA
Course Code :	2CS1010502
Pre-requisite Course:	Basic Knowledge of Object Oriented Programming

Course Objective:

This course is intended to make the students:

- To aware of Core Java concepts. Students are expected to learn various terminologies related to Java Programming such as JVM, JDK, constructor, inheritance, interfaces, package, exception handling, etc.
- To formulate a program using Java programming language and solve it.

Teaching Scheme(Hours per week)				Evaluation Scheme (Marks)								
Lecture	Tutorial	Practical	Credit	Theory				Practical				Total
				University Assessment		Continuous Assessment		University Assessment		Continuous Assessment		
				Min. Marks	Max. Marks	Min. Marks	Max. Marks	Min. Marks	Max. Marks	Min. Marks	Max. Marks	
3	1	4	6	28	70	12	30	12	30	08	20	150

Subject Contents			
Sr. No.	Topics	Total Hours	Weight (%)
1.	Fundamentals of Object Oriented Programming (OOP): • Basic concepts of OOP, Benefits and Applications of OOP. Introduction to Java : • History of Java, Features of Java, JDK and its Components / tools, Byte code, Java Virtual Machine (JVM), JAVA program structure, Compiling and executing Java Program. Basics of Java : • Tokens : Keywords, Identifiers, Literals, Operators. • Data Types, Variables, Scope of variables, Creating Constants (final variable), Type Conversion, Garbage Collection, Command Line Arguments, Arrays. • Selection Statements (if, switch, etc.), Iteration/Looping Statements (while, for, do...while), Jump Statements (break, continue, return).	9	20
2.	Creating Classes, Objects and Methods : • Defining classes, defining methods, creating objects, accessing class members, static members, method overloading, nesting of methods, use of 'this', object as method argument, method returning an object. Constructors : • Introduction to Constructors, Default & Parameterized Constructors, Constructor Overloading.	9	20

3.	Inheritance: - Introduction, types of inheritance, method overriding, final method, final class, use of super, abstract methods and abstract class. Interfaces (Multiple Inheritance): - Defining an Interface, Implementing Interfaces, Extending Interfaces.	10	20
4.	Packages: - Introduction to Java API Packages (java.applet, java.awt, java.io, java.lang, java.net, java.util). - Defining Package, Adding a Class to Package, Understanding of CLASSPATH, Importing Packages. Access Modifiers (Visibility Controls) – public, private, default, protected. java.lang package : Math,String, Wrapper classes. java.util package : Vector,Stack, Date.	10	20
5.	Exception Handling : Introduction to Error and its types, Exception, Exception Handling, Types of Exceptions, Java's Built-in Exceptions, Exception Handling (using try, catch, finally, throw, throws), Multiple catch, etc., throwing your own Exception.	10	20

Course Outcomes:

At the end of this course, the student would be able :

CLO.1 : To solve a problem in Core Java using object oriented programming.

CLO.2 : To have fundamental knowledge of the Java programming language.

CLO.3 : To understand the basic syntax/terminology used in the Java programming language.

CLO.4 : To write, compile and interpret Java programs.

CLO.5 : To design Java programs involving interfaces, packages, etc.

CLO.6 : To develop exception handling applications using Java.

Mapping of CLO , PO And PSO

	PO.1	PO.2	PO.3	PO.4	PO.5	PO.6	PO.7	PO.8	PO.9	PO.10	PO.11	PO.12	PSO.1	PSO.2	PSO.13
CLO.1				H	H		M						L		
CLO.2	H			H	H		M			M	M		M	L	M
CLO.3				M	H								M		
CLO.4	H				H								M		
CLO.5				H	H	H	M	M	M		H		M	M	H
CLO.6				H	H	H	M	M	M		H		M	M	H

List of Text book :

1. Programming with JAVA By E Balagurusamy, Tata McGraw Hill .

List of Text References book :

1. The Complete Reference JAVA By Herbert Schildt, Tata McGraw Hill .
2. Teach Yourself JAVA. By Joseph O'Neil & Herb Schildt, Tata McGraw Hill .

E-Resources/ WebLinks:

- <https://www.tutorialspoint.com/java/>
- <https://www.javatpoint.com/java-tutorial>

- <https://www.w3resource.com/java-tutorial/>
- <https://www.w3schools.in/java-tutorial/>
- <https://www.guru99.com/java-tutorial.html>
- <https://beginnersbook.com/java-tutorial-for-beginners-with-examples/>

List of Experiments:

Note:The experiment list provided beneath is for reference only. The course teacher may change/formulate it as per his/her methodology and requirement.

1. Write a program to display the message "My First Java Program".
2. Write a program to find the Area of circle.
3. Write a program that accepts Command-line Arguments and displays the same.
4. Write a program to find the largest no from the given Two Nos.
5. Write a program to find the largest no from the given Three Nos.
6. Write a program to implement the use of Switch Statement.
7. Write a program to find the Sum of the Digits of a given Number.
8. Write a program to display the Factorial of the given number.
9. Write a program to implement the use of break and continue statements.
10. Write a program to create a Student class and generate results of students (Total, Per, Grade).
11. Write a program to create an Employee class and generate Salary Slip for the employee.
12. Write a program which shows the use of Static Members.
13. Write a program which shows the use of Method Overloading.
14. Write a program which shows the Nesting of Methods.
15. Write a program that passes an object as a method argument.
16. Write a program for returning an object.
17. Write a program to implement the default constructors.
18. Write a program to implement the parameterized constructors.
19. Write a program to implement the overloading of constructors.
20. Write a Program to implement single inheritance.
21. Write a Program to implement multilevel inheritance.
22. Write a Program to implement hierarchical inheritance.
23. Write a program to implement method overriding.
24. Write a Program to implement the final method.
25. Write a Program to implement the final class.
26. Write a Program to implement the "super" keyword.
27. Write a Program to implement abstract class and abstract method.
28. Write a program to implement an interface.
29. Write a program to implement multiple inheritance.
30. Write a program to access classes within the same package.
31. Write a Program to import classes from other packages.
32. Write a Program to implement visibility controls (private, public, friendly, protected) by using packages.
33. Write a program to implement the methods of Math class.
34. Write a program to implement the methods of String class.
35. Write a program to implement the methods of Vector class.
36. Write a program to implement the methods of Stack class.
37. Write a program using try and catch for exception handling.
38. Write a program which uses finally statement.
39. Write a program which uses multiple catch blocks.
40. Write a program which shows the use of a throw statement.
41. Write a program which shows the use of throws clause.
42. Write a program which shows throwing our own exceptions.