

The Kelkar Education Trust's
V. G. Vaze College of Arts, Science, and Commerce (Autonomous)

B. Sc. (Information Technology)		Semester – III	
Course Name: Java Programming Practical		Course Code: VGVUSTVSE301	
Periods per week (1 Period is 120 minutes)		2	
Credits		2	
		Hours	Marks
Evaluation System	Practical Examination	3	100

Course Objective

To make learner understand and use

1. Basics of JAVA
2. Control flow, looping statements and Classes in JAVA.
3. Concept of inheritance and packages.
4. Concept of Arrays, Multithreading.
5. Concept of event handling, abstract window toolkit and layouts.

List of Practical

1.	Java Basics-I: Data types: primitive data types, Object Reference Types, Strings, Auto boxing, Operators: Arithmetic operators, assignment operators, increment and decrement operator, relational operator, logical operator, bitwise operator, conditional operator.
a.	Write a Java program that takes a number as input and prints its multiplication table.
b.	Write a Java program to display the following pattern. * ** **** *****
c.	Write a Java program to display the following pattern. * * * * * * * * *
2.	Java Basics-II: Control Flow Statements, Iteration Statements (Loopings), Jump statements, Arrays.
a.	Write a Java program which shows that the given number is a Prime or not.
b.	Write a Java program to count the letters, spaces, numbers and other characters of an input string
c.	Write a Java program to find largest and smallest number from the array.
d.	Write a Java program to reverse a string or number
e.	Write a Java program which shows that the given number is a Palindrome or not.
f.	Write a Java program which shows the implementation of Armstrong number.
3.	Java Classes and Objects:

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	Definition of class, syntax to write classes, Object, syntax to write object, Instantiating Objects From A Class, Initializing The Class Object And Its Attributes, Class Methods, Accessing A Method, Method Returning A Value, Method's Arguments, Method Overloading, Constructors, this Instance, super Instance, this instance, static fields of a class, static methods of a class.
a.	Write a simple program in Java to demonstrate class and object.
b.	Write a simple program in Java to demonstrate class and object with its instance variables and instance methods.
c.	Write a Java program which shows the implementation of method overloading.
d.	Write a Java program which shows the implementation of static fields and static methods of a class.
4.	Constructor and Destructor: Purpose of constructor, types of constructor, use of super keyword in constructor, destructor.
a.	a) Write a Java program which shows the use of constructor and destructor. b) Write a Java program which shows the implementation of all types of constructors.
b.	Write a Java program which shows the implementation of constructor overloading.
c.	Write a simple Java program which shows the use of super keyword.
d.	Write a Java program which demonstrates the use of destructor.
5.	Inheritance: Inheritance basics, Types of Inheritance, Derived Class Objects, Inheritance and Access Control, Default Base Class Constructors, this and super keywords, Method overriding, Dynamic method dispatch. Abstract Classes, Abstract Methods, Using final with inheritance Defining An Interface, Implementing Interfaces, Classes V/s Interfaces, Interface can be extended.
a.	Write a java program to implement all types of inheritance.
b.	Write a java program to implement method overriding.
c.	Write a java program to implement method overriding using dynamic method dispatch.
d.	Write a java program which how to implement interface.
e.	Write a java program to implement multiple inheritance using interface.
f.	Write a Java program which shows the implementation of interface extending other interface.
6.	Packages: Creating Packages, Default Package, Importing Packages, Using A Package.
a.	Create a package, Add the necessary classes and import the package in java class.
b.	Write a java program to add two matrices and print the resultant matrix.
c.	Write a java program for multiplying two matrices and print the product for the same.
7.	Multithreading: Multithreading: the thread control methods, thread life cycle, the main thread, creating a thread, extending the thread class.
a.	Write a java program to implement thread life cycle.
b.	Write a java program to implement multithreading.
8.	GUI programming(Part A):

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	Abstract Window Toolkit: Introduction to Window Fundamentals, Component, Container, Panel, Window, Frame, Canvas. Components – Labels, Buttons, Check Boxes, Radio Buttons, Choice Menus, Text Fields, Text, Scrolling List, Scrollbars, Panels, Frames
a.	Design a AWT program which shows the following components TextBox, Button, Label using Frame.
b.	Design a AWT program which shows the following components CheckBox, Radio Buttons using Frame.
d.	Design a AWT program which shows the following components Choice Menus, Scrolling List, ScrollBars using Frame.
9.	GUI programming(Part B): Event Handling: Delegation Event Model, Events, Event classes, Event listener interfaces, Using delegation event model. Layouts: Flow Layout, Grid Layout, Border Layout, Card Layout.
a.	Design a AWT program to print the factorial for an input value.
b.	Design an AWT program to perform various string operations like reverse string, string concatenation etc.
d.	Design an AWT application that contains the interface to add student information and display the same.
	Design an AWT application that contains Choice Menu on selecting an option from menu change the value of a Label to a selected option.
e.	Design an AWT application to generate result marks sheet.
10.	Introduction to NetBeans and Eclipse: Swing: Introduction to Swing, Difference between AWT and Swing, Swing Components: JButton, JLabel, JTextFiled, JTextArea, JCheckBox, JRadioButton, JMenuBar, JMenu, JMenuItem.
a.	Design a Swing application which shows the implementation of swing components using NetBeans/Eclipse.
b.	Design an AWT application which shows the implementation of AWT components using NetBeans/Eclipse.

Course Outcome	
Learner will be able to	
CO1	Implement object oriented programming concepts in Java.
CO2	Create and use package and interfaces in a Java.
CO3	Develop Java application using graphical user interface.
CO4	Develop windows application using AWT.
CO5	Handling of events with controls.

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Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Core Java 8 forBeginners	Vaishali Shah, Sharnam Shah	SPD	1 st	2015
2.	Java: The Complete Reference	Herbert Schildt	McGrawHill	9 th	2014
3.	Murach's beginningJava with Net Beans	Joel Murach , Michael Urban	SPD	1 st	2016
4.	Core Java, Volume I: Fundamentals	Hortsman	Pearson	9 th	2013
5.	Core Java, Volume II: Advanced Features	Gary Cornell and Hortsman	Pearson	8 th	2008
6.	Core Java: An Integrated Approach	R. Nageswara Rao	DreamTech	1 st	2008