KAMARAJ COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)

S.P.G.Chidambara Nadar - C.Nagammal Campus

S.P.G.C. Nagar, K.Vellakulam – 625 701 (Near VIRUDHUNAGAR).

Department of Computer Science and Engineering

Value Added Course on "Mastering the Art of Coding – Java Programming"

(12.02.2024 – 17.02.2024)

Trainer's Name : Mr.S.Sasidharan,HRLytics Private Limited,Bangalore.
Mr.S.Mukunthan , HRLytics Private Limited,Bangalore.

Course Objectives:

- To understand the basics of Java programming language.
- To learn the concepts of classes and objects
- To learn the basic of inheritance and interfaces in Java
- To Construct a simple generic function in Java
- To understand basics of the multithreading and exception handling mechanism

UNIT 1 Foundations of Java Programming: 9

Introduction to Java: Basic Features of - Data Types - Variables and Constants - Expressions and Operators - Type Casting - Conditional Statements - Looping Constructs - Input and Output Statements - Arrays in Java - Functions in Java - String Basics and Operations - Wrapper Classes - Concept of Boxing and Unboxing

UNIT 2 INTRODUCTION TO OBJECT-ORIENTED PRINCIPLES: 9

Classes and Objects in Java - Data Encapsulation and Static Keyword: Constructors - Static and Final Keywords - Inheritance and its Code Implementation – Polymorphism - Abstract Class and its Implementation in Java

UNIT 3 JAVA STANDARD LIBRARIES: COLLECTIONS 9

Introduction to Generics and Collections API - Importance and Need of Collections - Various Collection Classes and Hierarchy - API Methods in Collection Classes - Comparator and Comparable Interfaces

UNIT4 JAVA STANDARD LIBRARIES: GENERICS 9

Understanding Generics in Java - Generics and its Role in Collection Classes - Exploring Generic Types - Wildcards in Generics - Use cases and Benefits of Generics - Limitations and Best Practices

UNIT 5 MULTITHREADING,EXCEPTION HANDLING: 9

Multithreading-Creation of single thread-Creation of multi thread- Thread lifecycle-Thread synchronization-Interprocess communication-Introduction to Exception –Types of Exceptions - Class Hierarchy of Exceptions and Errors - Hands-on Practice: Common Exception Handling Techniques.

Course outcomes:

By the end of the course, the student will be able to:

CO1 Understand basic constructs of the Java language
CO2 Understand the basic principle of object oriented programming concepts
CO3 Demonstrate inheritance and interfaces in Java
CO4 Apply the concepts of collections and generics to write simple real world applications.
CO5 Build simple Java applications using threads and exception handling

VAC - Coordinator.

V. RAJESH KANNAN, AP-CSE
R. KUMARAVEL AP-CSE
G. PRAVEEN KUMAR - AP-CSE

VAC - Incharges.

Dr. G. UMAMAHESWARI.
Dr. G. NIRMALA.

HOD.

Dr. A. MEENAKSHI.

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course – Even Semester (2023- 24)

Course Name: JAVA PROGRAMMING **Duration: 6 days (45 Hours)**

MASTERING THE ART OF CODING-JAVA PROGRAMMING

12-02-2024-17-02-2024

No.of Students:60 **Resouce Person:Mr.S.Sasidharan**

Year:II CSE-A,B,C &ADS **Regulation:2021**

Course Objectives:

The objective of the course is to:

- Understand the basics of Java programming language.
- Learn the concepts of classes and objects
- Learn the basic of inheritance and interfaces in Java
- To Construct a simple generic function in Java
- To understand basics of the multithreading and exception handling mechanism

Day 1: Foundations of Java Programming

1. Basic Concepts:
   - Basics of Java
   - Operators
   - Variables
   - Conditional Statements
   - Looping
   - Arrays

Day 2: Introduction to object-Oriented Principles

1.CLASSES AND OBJECTS

- Strings
- Defining Classes
- Objects
- Methods
- Constructors.

2.Absraction and Encapsulation

Day 3: Inhertance , Interface and Inner Class

- Inheritance
- Superclasses
- Subclasses
- Types of Inheritance
- Abstract classes and methods
- Final classes and methods
- Interfaces.
- Inner classes

Day 4: Collections and Generic Method

1. Introduction to Generics and Collections API
    - Importance and Need of Collections
    - Various Collection Classes and Hierarchy.
    - Comparator and Comparable Interface
    - API Methods in Collection Classes

Day 5: Collections and Generic Method

1. Understanding Generics in Java
    - Generics and its Role in Collection Classes
    - Exploring Generic Types
2. Generic Programming
    - Generic Class - Wildcards in Generics
    - Generic Methods- Applications
    - Use cases and Benefits of Generics

Day 6: Multithrading and exception Handling.

1. Multithreading
    - Creation of single thread
    - Creation of multi thread
    - Thread Life Cycle
    - Thread Synchronization
    - Inter process communication.

2. Exception Handling.
    - Introduction to Exception
    - Class Hierarchy of Exceptions and Errors.
    - Creation of Exception using try and catch block

Course outcomes:

By the end of the course, the student will be able to:

CO1 Understand basic constructs of the Java language
CO2 Understand the basic principle of object oriented programming concepts
CO3 Demonstrate inheritance and interfaces in Java
CO4 Apply the concepts of collections and generics to write simple real world applications.
CO5 Build simple Java applications using threads and generic class

VAC In_charges

G.PRAVEEN KUMAR.
V.RAJESH KANNAN.

VAC Coordinators

Dr.G.UMAMAHESWARI.
Dr.G.NIRMALA.

HOD CSE

Dr.A.MEENAKSHI.