*SWAMI VIVEKANAND SUBHARTI UNIVERSITY*

# SUBHARTI INSTITUTE OF TECHNOLOGY & ENGINEERING

*(Approved by AICTE.)*

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SITE/CSE/VA/2016/1(c)

**OFFICE OF THE HOD(CSE)**

Date: 31/08/16

## NOTICE

The department of Computer Science Engineering is organizing a Value Added Course on 'Core Java Programmig Language' from 30$^{th}$ September '16 to 9$^{th}$ December'16 for the students of III year. Those who are willing can join by filling the registration form and submitting it before 25$^{th}$ september'16. Registration forms can be taken from coordinators Er. Surabhi Agrawal and Er. Faraz Saleem.

**H.O.D.(CSE)**

**CC:** The Principal, SITE (for information)

# VALUE ADDED PROGRAM-2016
## ON
## CORE JAVA

### SYLLABUS

Program Code:

CSV-16

## Basics of Java

- ✓ Java - What, Where and Why?
- ✓ History and Features of Java
- ✓ Internals of Java Program
- ✓ Difference between JDK, JRE and JVM
- ✓ Internal Details of JVM
- ✓ Variable and Data Type
- ✓ Unicode System
- ✓ Naming Convention

## OOPS Conecpts

- ✓ Advantage of OOPs
- ✓ Object and Class
- ✓ Method Overloading
- ✓ Constructor
- ✓ static variable, method and block
- ✓ this keyword
- ✓ Inheritance (IS-A)
- ✓ Aggregation and Composition(HAS-A)
- ✓ Method Overriding
- ✓ Covariant Return Type
- ✓ super keyword
- ✓ Instance Initializer block
- ✓ final keyword
- ✓ Runtime Polymorphism
- ✓ static and Dynamic binding
- ✓ Abstract class and Interface
- ✓ Downcasting with instanceof operator
- ✓ Package and Access Modifiers
- ✓ Encapsulation
- ✓ Object class
- ✓ Object Cloning
- ✓ Java Array
- ✓ Call By Value and Call By Reference
- ✓ strictfp keyword
- ✓ Creating API Document

## String Handling

- ✓ String : What and Why?
- ✓ Immutable String
- ✓ String Comparison
- ✓ String Concatenation
- ✓ Substring
- ✓ Methods of String class
- ✓ StringBuffer class
- ✓ StringBuilder class
- ✓ Creating Immutable class
- ✓ toString method
- ✓ StringTokenizer class

## Exception Handling

- ✓ Exception Handling : What and Why?
- ✓ try and catch block
- ✓ Multiple catch block
- ✓ Nested try
- ✓ finally block
- ✓ throw keyword
- ✓ Exception Propagation
- ✓ throws keyword
- ✓ Exception Handling with Method Overriding
- ✓ Custom Exception

## Nested Classes

- ✓ Nested Class : What and Why?
- ✓ Member Inner class
- ✓ Annonymous Inner class
- ✓ Local Inner class
- ✓ static nested class
- ✓ Nested Interface

## Multithreading

- ✓ Multithreading : What and Why?
- ✓ Life Cycle of a Thread
- ✓ Creating Thread
- ✓ ThreadSchedular
- ✓ Sleeping a thread
- ✓ Joining a thread

- Thread Priority
- ✓ Daemon Thread
- ✓ Thread Pooling
- ✓ Thread Group
- ✓ ShutdownHook
- ✓ Performing multiple task by multiple thread
- ✓ Garbage Collection
- ✓ Runnable class

## Synchronization

- ✓ Synchronization : What and Why?
- ✓ synchronized method
- ✓ synchronized block
- ✓ static synchronization
- ✓ Deadlock
- ✓ Inter-thread Communication
- ✓ Interrupting Thread

## Input and output

- ✓ FileOutputStream&FileInputStream
- ✓ ByteArrayOutputStream
- ✓ SequenceInputStream
- ✓ BufferedOutputStream&BufferedInputStream
- ✓ FileWriter&FileReader
- ✓ CharArrayWriter
- ✓ Input from keyboard by InputStreamReader
- ✓ Input from keyboard by Console
- ✓ Input from keyboard by Scanner
- ✓ PrintStream class
- ✓ PrintWriter class
- ✓ Compressing and Uncompressing File
- ✓ Reading and Writing data simultaneously
- ✓ DataInputStream and DataOutputStream
- ✓ StreamTokenizer class

## Serialization

- ✓ Serialization & Deserialization
- ✓ Serialization with IS-A and Has-A
- ✓ transient keyword

## Networking

- ✓ Socket Programming
- ✓ URL class
- ✓ Displaying data of a web page
- ✓ InetAddress class
- ✓ DatagramSocket and DatagramPacket
- ✓ Two way communication

## AWT and Event Handling

- ✓ AWT Controls
- ✓ Event Handling by 3 ways
- ✓ Event classes and Listener Interfaces
- ✓ Adapter classes
- ✓ Creating Games and Applications

## Swing

- ✓ Basics of Swing
- ✓ JButton class
- ✓ JRadioButton class
- ✓ JTextArea class
- ✓ JComboBox class
- ✓ JTable class
- ✓ JColorChooser class
- ✓ JProgressBar class
- ✓ JSlider class
- ✓ Digital Watch
- ✓ Graphics in swing
- ✓ Displaying Image
- ✓ Edit Menu for Notepad
- ✓ Open Dialog Box
- ✓ Creating Notepad
- ✓ Creating Games and applications

## LayoutManagers

- ✓ BorderLayout
- ✓ GridLayout
- ✓ FlowLayout
- ✓ BoxLayout
- ✓ CardLayout

## Applet

- Life Cycle of Applet
- Graphics in Applet
- Displaying image in Applet
- Animation in Applet
- EventHandling in Applet
- JApplet class
- Painting in Applet
- Digital Clock in Applet
- Analog Clock in Applet
- Parameter in Applet
- Applet Communication
- Creating Games

## Reflection API

- Reflection API
- newInstance() & Determining the class object
- javap tool
- creating javap tool
- creating appletviewer
- Accessing private method from outside the class

## Collection

- Collection Framework
- ArrayList class
- LinkedList class
- ListIterator interface
- HashSet class
- LinkedHashSet class
- TreeSet class
- PriorityQueue class
- ArrayDeque class
- Map interface
- HashMap class
- LinkedHashMap class
- TreeMap class
- Hashtable class
- Comparable and Comparator
- Properties class

## JDBC

- JDBC Drivers
- Steps to connect to the database

- Connectivity with Oracle
- Connectivity with MySQL
- Connectivity with Access without DSN
- DriverManager
- Connection interface
- Statement interface
- ResultSet interface
- PreparedStatement
- ResultSetMetaData
- DatabaseMetaData
- Storing image
- Retrieving image
- Storing file
- Retrieving file
- Stored procedures and functions
- Transaction Management
- Batch Processing
- JDBC New Features
- Mini Project

## Java New Features

- Assertion
- For-each loop
- Varargs
- Static Import
- Autoboxing and Unboxing
- Enum Type
- Annotation

etc.

# SUMMRAY

## VALUE ADDED COURSE- "CORE JAVA" (CSV-16)

**Course Motivation**: Java has proved it in the last 20 years. Two decades is a big time for any Programming language, and Java has gained strength every passing day. However, there are times, when Java development slows down, but Java has responded well. Google's choice of language for Android apps development keeps Java as a front-line programming language. It is the main reason for its popularity. If it in terms of Job opportunities, again Java outscore everyone. You can get tons of Jobs opportunity by learning Java programming language; you can develop core Java-based server-side application, J2EE web and enterprise applications, and can even go for Android-based mobile application development.

**Prerequisites**: Experience with a high-level language (C/C++) is suggested. Prior knowledge of Object-Oriented concepts is helpful but not mandatory.
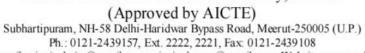
## Features of JAVA:

- **Object** Oriented. In Java, everything is an **Object**
- **Platform Independent**. Unlike many other programming languages including C and C++
- **Open source and free available IDE.**
- **High Performance** With the use of Just-In-Time compilers,
- **Robust** by emphasizing mainly on compile time error checking and runtime checking.
- **Architecture-neutral** which makes the compiled code executable on many processors, with the presence of Java runtime system.
- **Portable** Being architecture-neutral and having no implementation dependent aspects of the specification makes Java portable

**Importance of JAVA in industry**: Java is used for developing all types of cross **platform** applications . Java is used for developing Mobile, Desktop, web, serverside and dynamic web applications. As of 2016, Java is one of the most popular programming languages in use, particularly for client-server web applications, with a reported 9 million developers. Java acquired the popularity in the desktop applications, because of its usefulness and easiness. It is an excellent platform for growing trends of mobile phones such as Sony Ericson, Blackberry, and Nokia.

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## VALUE ADDED COURSES
## SESSION : 2016-17

### LIST OF STUDENTS

| STUDENT NAME |
|---|
| AAS MOHAMMAD |
| AASHUTTOSH KUMAR NITTAM |
| ABHIMANYU |
| ADITYA SHUKLA |
| AGA BODD DOLO |
| AKASH BALIYAN |
| AKASH KUMAR |
| AKASH KUMAR MORAL |
| AKASH TYAGI |
| AMIT KUMAR |
| ANKIT KUMAR BHATI |
| ANURAG PATEL |
| ASHISH KASHYAP |
| ASHISH KUMAR DUBEY |
| BHANU PRATAP |
| CHANDAN LAL MARANDI |
| DAGO PEACHU |
| DEEPAK KUMAR |
| DEKTSHIYA NEPAL |
| GAURAV PUNDIR |

# Certificate Sample

# Swami Vivekanand Subharti University
# Subharti Institute of Technology & Engineering

## CERTIFICATE OF COMPLETION OF VALUE ADDED COURSE
### On
## Core Java Programming

(30th September 2016 to 9th December 2016)

This is to certify that **Ms./Mr.** .................................................................................of III year
CSE has **successfully completed the course on** "Core Java Programming", organised by Computer
Science Engineering Department, Subharti Institute Of Technology & Engineering

Dr. Amit Asthana
Chief Patron

Er. Manik Chand Panday
Patron

Er. Deepak Rathore
Chairman