#### CERTIFICATION COURSES



# RCETECCC01 - Programming in Java

### **Course outcomes:**

- An understanding of the principles and practice of object oriented analysis and design in the construction of robust, maintainable programs which satisfy their requirements.
- A competence to design, writes, compile, test and execute straight forward programs using a high level language.
- An appreciation of the principles of object oriented programming.
- An awareness of the need for a professional approach to design and the importance of good documentation to the finished programs.

### **Syllabus:**

# UNIT I

### Java Programming

History of Java, comments, Data types, Variables, Constants, Scope and Lifetime of variables, Operators, Type conversion and casting, Enumerated types, Control flowblock scope, conditional statements, loops, break and continue statements, array, simple java stand alone programs, class, object and its methods, constructors and its types, methods, staticfields and methods, access control, this reference, overloading methods and constructors, recursion, garbage collection, exploring string class.

# UNIT II

**Inheritance**–Inheritance types, super keyword, preventing inheritance: final classes and methods.

Polymorphism- method overloading and overriding, abstract classes and methods.

**Interfaces-**Interfaces Vs Abstract classes, defining an interface, implement interfaces **Packages-** Defining, creating and accessing a package, importing packages.

## **UNIT III**

**Exception handling-** Define Exception, advantages of exception handling, the classification of exceptions- exception hierarchy, checked exceptions and unchecked

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exceptions, usage of try, catch, throw, throws and finally, creating own exception subclasses.

**Multithreading** –Define Thread, multithreading, thread life cycle, creating threads, interrupting threads, thread priorities, synchronizing threads, inter-thread communication, producer consumer problem.

# **UNIT IV**

Collection Framework in Java – Introduction to java collections, Overview of java collection framework, commonly used collection classes- Array List, Vector, Hash table, Stack, String to kenizer. Files - Streams- Byte streams, Character streams, Text input/output, Binaryinput/output, random access file operations, File management using File class. Connecting to Database – JDBC Type 1 to 4 drivers, connecting to a database, querying a database and processing the results, updating data with JDBC.

# UNIT V

Applets – Define applets, differences between applets and applications, Life cycle of an applet, Passing parameters toapplets.GUI Programming with Java- The AWT class hierarchy, Introduction to Swing, Swing VsAWT, Hierarchy for Swing component.

# **Reference Text Books:**

- 1. Java for Programmers, P.J.Deitel and H.M.Deitel, PEA (or) Java: How to Program, P.J.Deitel and H.M.Deitel, PHI
- 2. Object Oriented Programming through Java, P.RadhaKrishna, Universities Press.
- 3. Thinking in Java, Bruce Eckel, PE
- 4. Programming in Java, S. Malhotra and S. Choudhary, Oxford UniversitiesPress.
- 5. 5. Design Patterns Erich Gamma, Richard Helm, Ralph Johnson and JohnVlissides