

**Core Java  
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[CORE COURSE]**

<b>Semester: V</b>	<b>Credits: 3</b>	<b>Subject Code: BC52203</b>	<b>Lectures: 48</b>
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**Course Outcomes:**

At the end of this course ,the learner will be able to:

- Understand the basics of OOP techniques
- Solve problems using java collection framework and I/O classes
- Develop multithreaded applications with synchronization
- Design GUI based applications.

**Unit 1: Java Fundamentals and Classes, Objects**

**16**

- Introduction to Java.
- Features of Java
- Basics of Java: - Data types, variable, expression, operators, constant.
- Structure of Java Program.
- Execution Process of java Program.
- JDK Tools.
- Command Line Arguments.
- Array and String:
- Single Array & Multidimensional Array
- String, String Buffer
- Built In Packages and Classes:
- java.util:- Scanner, Date, Math etc.
- java.lang
- Class and Object
- Object reference
- Constructor: Constructor Overloading
- Method: Method Overloading, Recursion, Passing and Returning object form Method
- new operator, this and static keyword, finalize() method
- Nested class, Inner class, and Anonymous inner class



**Unit 2: Inheritance, Package and Collection**

**10**

- Overview of Inheritance
- Inheritance in constructor
- Inheriting Data members and Methods,
- Multilevel Inheritance – method overriding Handle multilevel

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<ul style="list-style-type: none"> <li>• constructors</li> <li>• Use of super and final keyword</li> <li>• Interface:</li> <li>• Creation and Implementation of an interface, Interface</li> <li>• reference</li> <li>• Interface inheritance</li> <li>• Dynamic method dispatch</li> <li>• Abstract class</li> <li>• Comparison between Abstract Class and interface</li> <li>• Access control</li> <li>• Packages <ul style="list-style-type: none"> <li>○ Packages Concept</li> <li>○ Creating user defined packages</li> <li>○ Java Built in packages</li> <li>○ Import statement, Static import</li> </ul> </li> <li>• Collection <ul style="list-style-type: none"> <li>○ Collection Framework.</li> <li>○ Interfaces: Collection, List, Set</li> <li>○ Navigation: Enumeration, Iterator, ListIterator</li> <li>○ Classes: LinkedList, ArrayList, Vector, HashSet</li> </ul> </li> </ul>	
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<b>Unit 3: File and Exception Handling</b>	<b>8</b>
<ul style="list-style-type: none"> <li>• Exception</li> <li>• Exception and Error</li> <li>• Use of try, catch, throw, throws and finally</li> <li>• Built in Exception</li> <li>• Custom exception</li> <li>• Throwable Class.</li> <li>• File Handling</li> <li>• Overview of Different Stream (Byte Stream, Character stream)</li> <li>• Readers and Writers class</li> <li>• File Class</li> <li>• File Input Stream , File Output Stream</li> <li>• Input Stream Reader and Output Stream Writer</li> <li>• class</li> <li>• FileReader and FileWriter class</li> <li>• Buffered Reader class</li> </ul>	

<b>Unit 4: AWT and Swing Programming</b>	<b>14</b>
<ul style="list-style-type: none"> <li>• AWT</li> <li>• Components and container used in AWT</li> <li>• Layout managers</li> <li>• Listeners and Adapter classes</li> <li>• Event Delegation model</li> <li>• Swing</li> </ul>	



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- Introduction to Swing Component and
- Container Classes
- Exploring Swing Controls- JLabel and Image Icon,
- JText Field, The Swing Buttons JButton, JToggle
- Button, JCheck Box, JRadio Button, JTabbed Pane,
- JScroll Pane, JList, JTable, JComboBox, Swing
- Menus, Dialogs, JFileOpen, JColorChooser

**#12 hours for Library work, assignments, practical or field work**

**Recommended Text Books:**

- Ebalgurusamy, *Programming with JAVA*
- S. Malhotra, S. Chudhary, *Programming in Java*, 2nd edition, Oxford Univ. Press

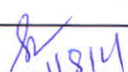
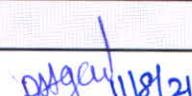
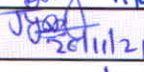
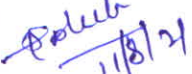
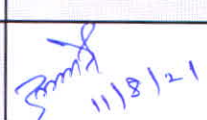
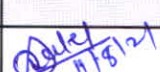
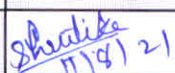
**Reference Books:**

- Ebalgurusamy, *Programming with JAVA*
- JAVA HerbertSchildt, *The Complete Reference*
- R. A. Johnson, Ceng, *Java Programming and Object-oriented Application Development*
- S. Malhotra, S. Chudhary, *Programming in Java*, 2nd edition, Oxford Univ. Press.

**Websites:**

- [www.w3school.com](http://www.w3school.com)



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Faculty*	Prof. Jyoti Amate		
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Subject Expert (Outside SPPU)	Dr. Sagar Jambhorkar		
VC Nominee	Prof Anjum Patel		
Industry Expert	Mr Sumit Palsingh:		
One Alumni***	Ms. VidhiThakkar		

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