<SUBJECTCODE> **Object Oriented Programming Using Java**

(Computer Science and Engineering)

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Prerequisite: Basic knowledge of C programming language

Course Education Objectives (CEO):

1. The model of object oriented programming: abstract data types, encapsulation, inheritance and polymorphism
2. Fundamental features of an object oriented language like Java: object classes and interfaces, exceptions and libraries of object collections
3. How to take the statement of a business problem and from this determine suitable logic for solving the problem; then be able to proceed to code that logic as a program written in Java.

Course Outcomes: (COs)

1. Knowledge of the structure and model of the Java programming language.
2. Use the Java programming language for various programming technologies.
3. Develop software in the Java programming language.
4. Evaluate user requirements for software functionality required to decide whether the Java programming language can meet user requirements.
5. Propose the use of certain technologies by implementing them in the Java programming language to solve the given problem.
6. Choose an engineering approach to solving problems, starting from the acquired knowledge of programming.

Assessment Methods:

- Direct Assessment
  - Continues Assessment of Skills
  - No of Class Test: 02
  - No of Cycle Test: 02
  - End Semester Examination: 01
- Indirect Assessment:
  - Course End Survey

CO-PO-PSO MATRIX

(1/2/3 indicates strength of correlation of CO: Course Outcome to PO: Program Outcome and PSO Program Specific Outcome)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3	1	-	-	-	-	-	-	-	-	-	-	1	-
CO2	3	2	2	-	-	-	-	-	-	-	-	-	1	-
CO3	2	2	2	-	-	-	-	-	-	-	-	-	2	-
CO4	2	1	2	-	-	-	-	-	-	-	-	-	1	-
CO5	2	1	3	-	-	-	-	-	-	-	-	-	1	-
CO6	1	3	3	-	-	-	-	-	-	-	-	-	1	-

SNo	Syllabus to be Covered	Hours
	UNIT - 1 - Hours	
1.1	An introduction to Object Oriented Programming, Features of Object Oriented Programming Introduction to Java. Difference between C/C++ and Java,	3
1.2	Features of Java, First Java Program, Writing the java program, Compiling the program, JVM and its significance in executing a program, Architecture of JVM.	2
1.3	Taking Input from keyboard, Command Line Arguments, Using Scanner Class, Using Buffered Reader class.	2
1.4	Java Tokens, Datatypes, Operators, Control Structures, Conditional Statements, Iteration Statement/Loops, Jumping Statements,	2
1.5	Java Arrays, 1-dimensional arrays, 2-dimensioanl arrays.	3
	UNIT - II - Hours	
2.1	Introduction to Classes and Objects. Constructors, static Keyword, this Keyword, Array of Objects, Access Modifiers (Public, Private, Protected, Default).	3
2.2	Inheritance, Types of Inheritance and Java-supported Inheritance, super, Polymorphism, Method Overloading, Constructor Overloading, Method Overriding, Dynamic Method Dispatching.	4
2.3	Interfaces, Multiple Inheritance Using Interfaces, abstract classes.	2
2.4	String Handling in Java: String, StringBuffer, StringBuilder, StringTokenizer	3
2.5	Wrapper classes, Auto boxing and unboxing.	3
	UNIT – III - Hours	
3.1	Java API Packages, User-Defined Packages, Accessing Packages.	2
3.2	Error and Exception Handling, Types of exceptions Hierarchy of Exception classes, try, catch, finally, throw, throws, Commonly used Exceptions and their details ,User defined exception classes.	3
3.3	Multithreading, Thread in Java, Thread execution prevention methods. (yield(), join(), sleep()), Concept of Synchronization, Inter Thread Communication, Basics of Deadlock, Demon Thread.	3
3.4	Inner Classes: Introduction, Member inner class, Static inner class, Local inner class, Anonymous inner class.	2
3.5	IO Streams (java.io package), Byte Stream and Character Stream, Files and Random Access Files, Serialization.	2
	UNIT – IV - Hours	
4.1	Collection Frame Work (java.util), Util Package interfaces, List, Set, Map.	3
4.2	Applet Introduction, Life Cycle of an Applet, GUI with an Applet.	2
4.3	AWT : The AWT class hierarchy, user interface components- Labels, Button, Text Components, Check Box, Check Box Group, Choice, List Box, Panels – Scroll Pane, Menu, Scroll Bar.	3
4.4	Working with Frame class, Colour, Fonts and layout managers.	2
4.5	Event Handling: Events, Event sources, Event Listeners, Event Delegation Model (EDM), Handling Mouse and Keyboard Events, Adapter classes,	2
	UNIT – V - Hours	
5.1	SWINGS: Introduction to Swings, Hierarchy of swing components. Containers, Top level containers -JFrame, JWindow, JDialog, JPanel, JButton, JToggleButton, JCheckBox, JRadioButton, JLabel,JTextField, JTextArea, JList, JComboBox, JScrollPane.	4

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5.2	Java Database Connectivity(JDBC) : Introduction, JDBC Driver, Database connectivity steps, connecting with MySQL/Oracle.	2
5.3	Registering the driver, connecting with MySQL/Oracle database, preparing SQL statement.	2
5.4	JDBC : DriverManager, Connection, Statement, ResultSet, PreparedStatement, ResultSetMetadata	2
5.5	CRUD operation using JDBC.	2
	TOTAL HOURS:	**60**

Reference:

1. E Balaguruswamy, 6th Edition, Programming with Java, McGraw Hill Education
2. R Nageswara Rao(2016), Core Java: An Integrated Approach, Dreamtech Press.
3. Herbalt Schelidt(2017), Java: The Complete Reference, McGraw Hill Education.
4. SachinMalhotra/ SauravChoudhary, Second Edition, Programming in Java, Oxford Higher Education,
5. RashmiKanta Das, Core Java For Beginners, Vikas Publication.

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