



GUJARAT TECHNOLOGICAL UNIVERSITY
Syllabus for Integrated MSc, 9th Semester
Branch: Information Technology
Subject Name: Java Programming Using Swing
Subject Code: 1390506

Teaching and Examination Scheme

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
			ESE(E)	PA (M)	PA (I)	ESE(V)		
3	0	2	4	70	30	20	30	150

Content:

Sr. No.	Content	Teaching Hours	Module Weightage (%)
1.	Introduction to Java and Swing Basics : Overview of Java: Introduction to Java, the JVM, and key Java libraries ,Java Basics: Syntax, variables, data types, operators, and simple I/O ,Setting Up Java Development Environment: Installing JDK, using an IDE (e.g., Eclipse, IntelliJ, NetBeans) ,Introduction to Java Swing: History of Swing, its purpose, and comparison with AWT ,Basic Swing Structure: Introduction to JFrame, JPanel, and components	4	10
2.	Core Java Basics and Object-Oriented Programming (OOP) : Control Flow Statements: if-else, switch, for, while, and do-while loops ,Methods and Constructors: Defining and using methods, constructors, and method overloading ,Object-Oriented Programming Concepts: Classes and Objects: Creating and using classes and objects ,Encapsulation: private, public, protected access modifiers ,Inheritance: Basic inheritance and use of super keyword ,Polymorphism: Method overriding	8	20
3.	Introduction to Swing Components and Layouts : Swing Basics: Adding and customizing JButton, JLabel, and JTextField ,Introduction to Layout Managers: FlowLayout: Simple left-to-right arrangement ,BorderLayout: Organizing components into five regions (NORTH, SOUTH, EAST, WEST, CENTER), GridLayout: Organizing components in a grid pattern ,Customizing Components: Setting text, colors, fonts, and tooltips	8	20
4.	Event Handling and Basic Interactivity : Introduction to Event Handling in Swing ,Implementing ActionListener: ,Using ActionListener to respond to button clicks ,Writing actionPerformed methods to define button behavior ,Basics of Other Listeners: MouseListener and KeyListener (introduction only)	8	20
5.	Advanced Components in Swing : Additional Swing Components: ,JTextArea for multi-line text input ,JCheckBox and		



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	JRadioButton for selection options ,Grouping Radio Buttons with ButtonGroup ,JComboBox for dropdown selection ,Using JScrollPane for adding scrollable areas ,Component Properties: setEnabled(), setVisible(), and other methods	8	20
6.	Introduction to Layouts and Building Multi-Panel UIs : Working with Panels:, Introduction to JPanel and nesting panels ,Adding multiple JPanel objects to a JFrame with different layouts ,Advanced Layout Managers: ,Deep dive into BorderLayout and GridLayout ,Introduction to BoxLayout for vertical or horizontal stacking ,Combining Layout Managers: Using different layouts within nested panels for complex UIs	4	10

Reference Books:

1. Aswani Nagesh Kumar "**Java 2 Swing**" provides a thorough introduction to Java Swing, covering basic to advanced components and layouts. with Dreamtech Press publisher
2. Talal Ahmad, and R. Nageswara Rao "**Java Swing**" provides detailed coverage of Java Swing components and practical examples. with McGraw Hill Education (India) publisher
3. Somashekara, D. S. Guru, K. S. Manjunatha "**Java Programming**" covers Java programming comprehensively, including Swing components and event handling. with PHI Learning publisher
4. Herbert Schildt (Special Indian edition by Tata McGraw Hill) "**Swing: A Beginner's Guide**" This special focuses specifically on Java Swing. It provides a clear, step-by-step approach to building Swing applications, covering everything from basic components to advanced features like menus, dialogs, and custom graphics. With Tata McGraw Hill Education (India) publisher

Course Outcome:

After learning the course, the students should be able to:

No.	CO statement
CO-1	Provide a fundamental understanding of Java programming and introduce Swing.
CO-2	Teach foundational Java programming with an emphasis on OOP concepts used in Swing.
CO-3	Familiarize with Swing's core components and layout managers.
CO-4	How to make applications interactive using event listeners and handlers.
CO-5	Introduce more Swing components for creating a functional GUI.
CO-6	Provide an understanding of layout managers and how to use multiple panels in a single interface.