(Chapters 10, 13)

Reference Books:
1. James K. Peckol: Embedded Systems, A contemporary Design Tool, Wiley India, 2008.
2. Tammy Neorgaard: Embedded Systems Architecture, Elsevier, 2005.

JAVA AND J2EE

Subject Code: 10IS753	**IA Marks: 25**
Hours/Week: 4	**Exam Marks: 100**
Total Hours: 52	**Exam Hours: 3**

PART - A

UNIT – 1   **6 Hours**
Introduction to Java: Java and Java applications; Java Development Kit (JDK); Java is interpreted, Byte Code, JVM; Object-oriented programming; Simple Java programs.
Data types and other tokens: Boolean variables, int, long, char, operators, arrays, white spaces, literals, assigning values; Creating and destroying objects; Access specifiers.
Operators and Expressions: Arithmetic Operators, Bitwise operators, Relational operators, The Assignment Operator, The ? Operator; Operator Precedence; Logical expression; Type casting; Strings
Control Statements: Selection statements, iteration statements, Jump Statements.

UNIT – 2   **6 Hours**
Classes, Inheritance, Exceptions, Applets: Classes: Classes in Java; Declaring a class; Class name; Super classes; Constructors; Creating instances of class; Inner classes.
Inheritance: Simple, multiple, and multilevel inheritance; Overriding, overloading.
Exception handling**:** Exception handling in Java.
The Applet Class: Two types of Applets; Applet basics; Applet Architecture; An Applet skeleton; Simple Applet display methods; Requesting repainting; Using the Status Window; The HTML APPLET tag; Passing parameters to Applets; getDocumentbase() and getCodebase(); ApletContext and showDocument(); The AudioClip Interface; The AppletStub Interface; Output to the Console.

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UNIT – 3   **7 Hours**
Multi Threaded Programming, Event Handling: Multi Threaded Programming: What are threads? How to make the classes threadable; Extending threads; Implementing runnable; Synchronization; Changing state of the thread; Bounded buffer problems, read-write problem, producer-consumer problems.
Event Handling: Two event handling mechanisms; The delegation event model; Event classes; Sources of events; Event listener interfaces; Using the delegation event model; Adapter classes; Inner classes.

UNIT – 4   **7 Hours**
Swings: Swings: The origins of Swing; Two key Swing features; Components and Containers; The Swing Packages; A simple Swing Application; Create a Swing Applet; Jlabel and ImageIcon; JTextField;The Swing Buttons; JTabbedpane; JScrollPane; JList; JComboBox; JTable.

PART – B

UNIT – 5   **6 Hours**
Java 2 Enterprise Edition Overview, Database Access: Overview of J2EE and J2SE
The Concept of JDBC; JDBC Driver Types; JDBC Packages; A Brief Overview of the JDBC process; Database Connection; Associating the JDBC/ODBC Bridge with the Database; Statement Objects; ResultSet; Transaction Processing; Metadata, Data types; Exceptions.

UNIT – 6   **7 Hours**
Servlets: Background; The Life Cycle of a Servlet; Using Tomcat for Servlet Development; A simple Servlet; The Servlet API; The Javax.servlet Package; Reading Servlet Parameter; The Javax.servlet.http package; Handling HTTP Requests and Responses; Using Cookies; Session Tracking.

UNIT – 7   **6 Hours**
JSP, RMI: Java Server Pages (JSP): JSP, JSP Tags, Tomcat, Request String, User Sessions, Cookies, Session Objects.
Java Remote Method Invocation: Remote Method Invocation concept; Server side, Client side.

UNIT – 8   **7 Hours**
Enterprise Java Beans: Enterprise java Beans; Deployment Descriptors; Session Java Bean, Entity Java Bean; Message-Driven Bean; The JAR File.

Text Books:
1. Herbert Schildt: Java - The Complete Reference, 7th Edition, Tata McGraw Hill, 2007.

(Chapters 1, 2, 3, 4, 5, 6, 8, 10, 11, 21, 22, 29, 30, 31)
2. Jim Keogh: J2EE - The Complete Reference, Tata McGraw Hill, 2007.
   (Chapters 5, 6, 11, 12, 15)

Reference Books:
1. Y. Daniel Liang: Introduction to JAVA Programming, 7th Edition, Pearson Education, 2007.
2. Stephanie Bodoff et al: The J2EE Tutorial, 2nd Edition, Pearson Education, 2004.

MULTIMEDIA COMPUTING

Subject Code: 10IS754   I.A. Marks   : 25
Hours/Week : 04   Exam Hours: 03
Total Hours : 52   Exam Marks: 100

PART – A

UNIT – 1   **7 Hours**
Introduction, Media and Data Streams, Audio Technology: Multimedia Elements; Multimedia Applications; Multimedia Systems Architecture; Evolving Technologies for Multimedia Systems; Defining Objects for Multimedia Systems; Multimedia Data Interface Standards; The need for Data Compression; Multimedia Databases.
Media: Perception Media, Representation Media, Presentation Media, Storage Media, Transmission Media, Information Exchange Media, Presentation Spaces & Values, and Presentation Dimensions; Key Properties of a Multimedia System: Discrete & Continuous Media, Independence Media, Computer Controlled Systems, Integration; Characterizing Data Streams: Asynchronous Transmission Mode, Synchronous Transmission Mode, Isochronous Transmission Mode; Characterizing Continuous Media Data Streams.
Sound: Frequency, Amplitude, Sound Perception and Psychoacoustics; Audio Representation on Computers; Three Dimensional Sound Projection; Music and MIDI Standards; Speech Signals; Speech Output; Speech Input; Speech Transmission.

UNIT – 2   **7 Hours**
Graphics and Images, Video Technology, Computer-Based Animation: Capturing Graphics and Images Computer Assisted Graphics and Image Processing; Reconstructing Images; Graphics and Image Output Options.
Basics; Television Systems; Digitalization of Video Signals; Digital Television; Basic Concepts; Specification of Animations; Methods of