3CSE 214 Object oriented Programming with JAVA CREDITS: 3 INSTRUCTION: 3Theory & 1Tutorial/ Week SESSIONAL MARKS: 40 FINAL EXAM: 3Hrs FINAL EXAM MARKS: 60

Prerequisites:

- Basic knowledge of computer fundamentals.
- Student must have knowledge of some programming languages (such as C, C++)

Objectives:

- To Understand Object Oriented Programming Concepts and Apply Them in Problem Solving.
- To Learn The Basics of Java Console and GUI Based Programming.

Course Outcomes:

CO-1: Design Classes for Real Time Applications.
CO-2: Establish The Connectivity Among The Classes Using Inheritances And Interfaces.
CO-3: Modularize The Application Using Packages and apply threads on classes to achieve parallelism through synchronization.
CO-4: Develop Test Cases By Including The Runtime Errors Using Exceptions Handling Mechanism and multi Threading
CO-5: Identify AWT components to Design the GUI Using Applet & AWT Frameworks

CO-PO MAPPING:

	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**
CO-1	1	2	3	1	1	-	-	-	1	-	1	3	2	2
CO-2	2	3	3	2	2	-	-	-	2	-	-	3	2	2
CO-3	1	3	3	1	3	-	-	-	2	-	-	3	2	2
CO-4	1	2	3	2	2	1	-	-	2	-	-	3	2	2
CO-5	2	1	3	2	3	-	-	-	2	-	-	3	2	2

Correlation Levels 1 2 3 Defined as Below
1 High: Strong Correlation
2 Medium: Moderate Correlation
3 Low: Slight

COURSE CONTENTS:

UNIT-I **10-12hours**

Fundamentals of Object Oriented Programming : Introduction, object oriented paradigm, object and classes, Data Abstraction and Encapsulation, Inheritance, Polymorphism, Dynamic Binding, Applications of OOP.

Java programming - History of Java, Java Buzzwords, Data types, variables, operators. Control structures, arrays, console input and output, Simple programs on java. Introduction to Classes, objects, constructors, methods, parameter passing, overloading constructors and methods, static fields and methods, this reference, final keyword, garbage collection, finalize method, inner class, String handling.

Learning Outcomes: At the end of this unit the Students will be able to

1. Identify the object and understand object oriented principles
2. Create class, constructor and can handle string operations

UNIT – II **10-12 hours**

Inheritance – Basics, using super keyword, multilevel hierarchy, Member access rules, preventing inheritance- using final, the Object class and its methods.

Polymorphism - dynamic binding, method overriding, abstract class and methods. Interfaces - Interfaces vs. Abstract class, defining an interface, implementing interfaces, accessing implementations through interface references, extending interfaces.

Packages - Defining, Creating and Accessing a Package, importing packages

Learning Outcomes: At the end of this unit the Students will be able to

1. Derive a class from existing class or from interface
2. Define a package and importing class from package

UNIT –III **10-12 hours**

I/O: I/O basics, byte and character streams, read/ write console input/output, reading and writing files.

Exception handling – Fundamentals, Exception types, use of try and catch, throw, throws, finally, multiple catches, built-in exceptions, user defined exceptions.

Multithreading – Thread Priorities, synchronization, messaging, reading a thread, creating multiple threads, use of alive and join, inter-thread communication- suspending resuming and stopping threads, producer-consumer problem with multithreading.

Learning Outcomes: At the end of this unit the Students will be able to

1. Handle predefined Exceptions and can define custom exceptions
2. Split a complex task into multiple threads.

UNIT-IV **10-12 hours**

Swings: Introduction to swings, The HTML Applet tag, a simple banner applet. Difference between Application program and applet program.

AWT-Working with Windows, Graphics and Text: AWT Classes and components, Window fundamentals, working with Frame windows, Working with graphics,
Layout Managers : Flow Layout, Border Layout, Grid Layout.
Learning Outcomes: At the end of this unit the Students will be able to

1. Design Swing Applet class with html tag
2. Design GUI components using AWT
3. Arrange components in Layouts

UNIT-V **10-12 hours**

Event Handling: The Delegation event model, Event classes, Event Listener interfaces, handling Action event, Item Event, Mouse Event, keyboard event and Window Events.
Enterprise Java Beans: Introduction to EJB, Advantages and Disadvantages of EJB, Difference between RMI and EJB, Types of EJB: Session bean, entity bean, message driven bean.
Learning Outcomes: At the end of this unit the Students will be able to

1. Define Event Handling on the components using Delegation event model
2. Examine different types of beans

TEXT BOOKS

1. Herbert Schildt, "JAVA The Complete Reference", TataMcGraw Hill,seventh edition.
2. "Programming with JAVA - A Primer" – Third Edition, E Balagurusamy.

REFERENCES BOOKS

1. P.J. Deitel and H.M. Deitel, "Java for Programmers", Pearson education (OR) P.J. Deitel and H.M. Deitel, "Java: How to Program", PHI.
2. P. Radha Krishna, "Object Orientd Programming through Java", Universities Press.
3. Bruce Eckel, "Thinking in Java", Pearson Education
4. Bruce Eckel, "Programming in Java", Pearson Education
5. S. Malhotra and S. Choudhary, "Programming in Java", Oxford Univ. Press.

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