CSE11109	Object Oriented Programming	L	T	P	C
Version 1.0	Contact Hours 45	3	0	0	3
Pre-requisite/Exposure	Knowledge of procedural programming				
Co-requisite	NIL				

Course Objectives:

Students will be motivated to solve the problems in engineering using the concepts of object-oriented programming.

Course Outcomes:

On completion of this course, the students will be able to

CO1. **Interpret** fundamentals of object-oriented programming in Java, including definingClasses, invoking methods, using class libraries, etc.
CO2. **Construct** programming solutions with exception handling and multi-threading concept
CO3. Develop programming solutions using database connectionCO4. .
Solve GUI program with proper event handling techniques
CO5. **Develop** programming solutions to real world problems effectively.

Course Description:

This course investigates object-oriented methods including object-oriented programming methodologies and techniques. Current methodology is emphasized. The use of object-oriented features such as encapsulation, information hiding, inheritance and polymorphism is reinforced by class assignments and programming exercises. The importance of multi-threading and exception handling is introduced in this course.

Course Content:

Unit-I	09 Lecture Hours
OOP Concepts - Data Abstraction, Encapsulation, Inheritance, Benefits of Inheritance, Polymorphism, Classes and Objects, Procedural and OOP Paradigms. Introduction To Java, Data Types, Variables & Constants, Scope & Life Time Of Variables, Precedence Of Operator, Expressions, Type Casting, Enumerated Types, Block Scope, Control Flow, Conditional Statements, Loops, Break & Continue Statements, Arrays, Console Input/Output, Formatting Output, Constructors Methods, Parameter Passing, Static Fields & Methods, Access Control, "This" Reference, Method Overloading, Recursion, Garbage Collection, Building Strings, String Class.	
Unit-II	**09 Lecture Hours**
Exception Handling - Dealing With Errors, Advantages Of Exception Handling, The Classification - Exception Hierarchy, Checked And Unchecked Exceptions, Try, Catch, Throw, Throws And Finally, Exceptions-Throwing, Exception Specification, Built In Exceptions, Creating Exception Sub Classes. **Multithreading -** Difference Between Multiple Processes And Multiple Threads, Thread States, Creating And Interrupting Threads, Thread Priorities, Synchronizing Threads, Inter-Thread Communication, Procedure Consumer Pattern.	
Unit-III	**09 Lecture Hours**
Collection Framework - Introduction, Generics and Common Use Of Collection Classes, Array List, Vector, Hash Table, Stack, Enumeration, Iterator, String Tokenizer, Random, Scanner, Calendars And Properties. **Files -** Streams - Byte Streams, Character Streams, Text Input/Output, Binary Input/Output, Random Access of File Operations, File Management. **Connecting To Database –** JDBC / ODBC Type 1 To 4 Drivers, Connection And Handling Databases With JDBC.	
Unit-IV	**09 Lecture Hours**
GUI Programming - The AWT Class Hierarchy, Introduction To Swing, Swing Vs, AWT, Hierarchy Of Swing Components, Containers - Jframe, Japplet, Jdialog, Jpanel, Overview Of Swing Components: Jbutton, Jlabel, Jtextfield, Jtextarea, Swing Applications, Layout Management - Types - Border, Grid And Flow **Event Handling -** Events, Sources, Classes, Listeners, Event Sources And Listeners, Delegation Event Model, Examples. Handling Mouse Events, Adapter Classes. **Applets -** Inheritance Hierarchy For Applets, Differences Between Applets And Applications, Life Cycle, Passing Parameters To Applets, Applet Security Issues.	
Unit-V	**09 Lecture Hours**
Application Development: Design of real life GUI applications using Swing/AWT/JDBC for Employee management system, Hotel management system, Hospital management system etc.	
Text Books: 1. Java Fundamentals - A Comprehensive Introduction, Illustrated Edition ByDaleskrien, Herbert Schildt, Mcgraw-Hill Education. **Reference Books:** 1. Java For Programmers, 2nd Edition By Paul Deitel And Harvey Deitel, Pearson Education. 2. Thinking In Java, Low Price Edition By Bruce Eckel, Pearson Education	

Modes of Evaluation: Quiz/Assignment/Presentation/Extempore/ Written Examination

Examination Scheme:

Components	Mid Term	Class Assessment	End Term
Weightage (%)	20	30	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
Course Outcomes (COs)		**Mapped Program Outcomes**
CO1	**Interpret** fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc.	PO1, PSO1,PO12
CO2	**Construct** programming solutions with exception handling and multi-threading concept	PO1, PO2, PO3, PSO2, PS03
CO3	**Develop** programming solutions using database connection	PO1, PO2, PSO1
CO4	**Solve** GUI program with proper event handling techniques	PO1, PO12, PO3, PSO1, PSO3
CO5	**Develop** programming solutions to real world problems effectively.	PO1, PO2, PO3, PSO1, PSO3,PO12

		Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Adequate strong skills in learning newprogramming environments, analyse and	The ability to understand the evolutionary changes in computing, apply standard practices and	Ability to analyse the impact of Computer Science and Engineering solutions in the societal and
Course Code	**Course Title**	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	PSO 3
CSE 11109	Object oriented programming	3	3	2	-	-	-	-	-	-	-	-	3	3	1	1