Program : **Diploma in Computer Engineering / Computer Hardware Engineering**	
Course Code : **4136**	Course Title: **Object oriented programming Lab**
Semester : **4**	Credits: **1.5**
Course Category: **Program Core**	
Periods per week: **3 (L:0 T:0 P:3)**	Periods per semester: **45**

Course Objectives:

- Impart skills for learning platform independent object-oriented programming concepts.
- Understand the design and use of GUI in application development.
- Impart skills to develop applications using databases.

Course Prerequisites:

Topic	Course code	Course name	Semester
Programming concepts.		Programming in C Lab	III

Course Outcomes:

On completion of the course, the student will be able to:

COn	Description	Duration (Hours)	Cognitive Level
CO1	Develop programs using Java class & object	12	Applying
CO2	Implement different types of inheritances	10	Applying
CO3	Build GUI applications using swing.	11	Applying
CO4	Build databases applications in JAVA	9	Applying
	Lab Exam	3	

CO – PO Mapping

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3			3			
CO2	3			3			
CO3	3			3			
CO4	3			3			

3-Strongly mapped, 2-Moderately mapped, 1-Weakly mapped

Course Outline

Module Outcomes	Description	Duration (Hours)	Cognitive Level
CO1	**Develop programs using Java class & object**		
M1.01	Develop java programs using class and objects	2	Applying
M1.02	Implement java programs that handle objects such as array of objects, passing and returning objects as arguments.	2	Applying
M1.03	Demonstrate the role of constructors.	2	Applying
M1.04	Implement programs using static variables and methods.	2	Applying
M1.05	Implement programs using method overloading	2	Applying
M1.06	Construct programs by including an exception handling mechanism.	2	Applying
CO2	**Implement different types of inheritances**		
M2.01	Implement programs using single inheritance	2	Applying
M2.02	Implement programs using multilevel and hierarchical inheritance	2	Applying
M2.03	Implement programs using interfaces	2	Applying
M2.04	Demonstrate the role of user defined and built-in packages	2	Applying
M2.05	Implement programs that show the relevance of various scopes.	2	Applying
	Lab Exam – I	1.5	

CO3	**Build GUI applications using swing**.		
M3.01	Design GUI applications using the SWING package.	3	Applying
M3.02	Demonstrate event handling in JAVA.	3	Applying
M3.03	Implement programs with multiple listener interfaces.	5	Applying
CO4: Build databases applications in JAVA			
M4.01	Implement program to establish a connection to a database using JDBC API	3	Applying
M4.02	Implement programs for preparing & executing database queries, retrieving datasets and extracting the required data.	3	Applying
M4.03	Develop simple application using GUI components and database	3	Applying
	Lab Exam – II	1.5	

Text / Reference

T/R	Book Title/Author
T1	Herbert Schildt, Date Skrien: J**ava Fundamentals A Comprehensive Introduction**
T2	Balaguruswamy E: **Programming with Java**, 6th edition.
R1	Liang, Y Daniel: **Introduction to JAVA Programming**, Pearson, 9th Ed.
R2	Herbert Schildt: **Java: The Complete Reference**, Seventh Edition,
R3	Herbert Schildt: **Swing A Beginner's guide**
R4	Paul Deital, Harvey Deital: **Java How to Program**,
R5	Yang HU: **Easy Learning JDBC+Mysql**

Online Resources

Sl.No	Website Link
1	https://onlinecourses.nptel.ac.in/noc20_cs08/course
2	https://www.tutorialspoint.com/java