



B. P. Poddar Institute of Management & Technology

Department of Information Technology

Object Oriented Programming (PCCCS503)

Academic Year: 2024-25 Semester: 5th

Lesson Plan

Week	Class	Topic	Subtopics / Activities	COs
1	1	Intro to OOP and ADTs	Evolution, ADT definition, example in Java	CO1
	2	ADT Design & Implementation	Concrete invariant, abstraction function	CO1
	3	Java Classes, Objects, Methods	Class structure, object creation, this, new	CO1, CO2
	4	Method Overloading	Static polymorphism, rules, examples	CO2
2	5	Encapsulation, Access Specifiers	private, public, protected, getters/setters	CO2
	6	Object Identity	Object references, == vs equals(), hashCode	CO2
	7	Association, Aggregation, Composition	“has-a”, “uses-a”, design examples	CO2
	8	Inheritance Basics	extends, Single/multilevel inheritance	CO2
3	9	Overriding, super, Dynamic Dispatch	Runtime polymorphism, method resolution	CO2
	10	Abstract Classes	Abstract methods, abstract vs concrete	CO2
	11	Interfaces in Java	implements, multiple inheritance, default methods	CO2

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	12	Wrapper Classes & Autoboxing	Integer, Double, Boolean, conversions	CO5
4	13	Exception Handling	try, catch, finally, custom exceptions	CO5
	14	Design Patterns – Introduction	Need, GOF classification, use of patterns	CO3
	15	Iterator Pattern	UML, intent, Java example	CO3
	16	Factory Pattern	UML, dynamic object creation, use cases	CO3
5	17	MVC Pattern	Model-View-Controller, layering UI logic	CO3, CO4
	18	Introduction to Java Swing	JFrame, JButton, JLabel, layout managers	CO4
	19	Event Handling in GUI	ActionListener, event delegation model	CO4
	20	Mini-GUI Exercise	Create simple form, handle events	CO4, CO6
6	21	Java Collections – List, Set, Map	ArrayList, HashMap, Iterators	CO5
	22	Generics in Java	Generic classes, bounded types	CO5
	23	Java Packages & Access	import, package, access specifiers across packages	CO5
	24	Java Memory Management	GC, strong/weak refs, finalize	CO5
7	25	Java Threads – Basics	Thread lifecycle, Thread, Runnable, start()	CO5
	26	Thread Synchronization	synchronized, wait(), notify()	CO5
	27	I/O Streams in Java	FileInputStream, BufferedReader, File operations	CO5
	28	Mid-Term Test / Assignment Review	Covers CO1 to CO4	CO1–CO4

Week	Class	Topic	Subtopics / Activities	COs
8	29	Micro Project Planning Session	Plan a Java project involving GUI + OOP	CO6
	30	Case Study – Event-driven App	MVC-based mini case study	CO6
	31	Student Mini-Presentations / Peer Review	Students demonstrate part of their OOP app	CO6
	32	Exception + Thread Integration	Practice combining exceptions & threads	CO5, CO6
9	33	Design Pattern Recap	Iterator, Factory, MVC summary	CO3
	34	GUI + Event Handling Recap	Event chaining, nested listeners	CO4
10	35	Extra Class: Generic Libraries in Java (optional coverage)	Java utility libraries, functional interface intro	CO5
	36	Extra Class: Java 8 Features (Streams, Lambdas)	Hands-on session (if time)	CO5
	37	Extra Class: Debugging & Best Practices	IDE usage, Eclipse or IntelliJ, breakpoints	CO6
	38	Doubt clearing class	Help students prepare for end semester theory exm	All CO