

**COURSE PLAN (2024-2025)**

Name of the Faculty Members				
Designation/Department	ASSISTANT PROFESSOR /IT			
Course Code/Name	U23ITT34/OBJECT ORIENTED PROGRAMMING			
Year/Section/Department	II / IT			
Credits Details	L:3	T:0	P:0	C:3
Total Contact Hours Required	45			

Syllabus:

UNIT-I INTRODUCTION TO OOP AND JAVA	9
Overview of OOP – Object oriented programming paradigms – Features of Object-Oriented Programming – Java Buzzwords – Overview of Java – Data Types, Variables and Arrays –Operators – Control Statements – Programming Structures in Java – Defining classes in Java –Constructors- Methods - Access specifiers - Static members- JavaDoc comments	
UNIT-II INHERITANCE, PACKAGES AND INTERFACES	9
Overloading Methods – Objects as Parameters – Returning Objects –Static, Nested and Inner Classes. Inheritance: Basics– Types of Inheritance -Super keyword -Method Overriding – Dynamic Method Dispatch –Abstract Classes – final with Inheritance. Packages and Interfaces: Packages –Packages and Member Access –Importing Packages – Interfaces.	
UNIT-III EXCEPTION HANDLING AND MULTITHREADING	9
Exception Handling basics – Multiple catch Clauses – Nested try Statements – Java's Built-in Exceptions –User defined Exception. Multithreaded Programming: Java Thread Model–Creating a Thread and Multiple Threads – Priorities – Synchronization – Inter Thread Communication- Suspending –Resuming, and Stopping Threads –Multithreading. Wrappers – Auto boxing	
UNIT-IV I/O, GENERICS, STRING HANDLING	9
I/O Basics – Reading and Writing Console I/O – Reading and Writing Files. Generics: Generic Programming – Generic classes – Generic Methods – Bounded Types – Restrictions and Limitations. Strings: Basic String class, methods and String Buffer Class.	
UNIT-V JAVAFX EVENT HANDLING, CONTROLS AND COMPONENTS	9
JAVAFX Events and Controls: Event Basics – Handling Key and Mouse Events. Controls: Checkbox, Toggle Button – Radio Buttons – List View – Combo Box – Choice Box – Text Controls –Scroll Pane. Layouts – Flow Pane – HBox and VBox – Border Pane – Stack Pane – Grid Pane. Menus– Basics – Menu – Menu bars – Menu Item.	

Objectives:

- ❖ To understand Object Oriented Programming concepts and basic characteristics of Java
- ❖ To understand Object Oriented Programming concepts and basics of Java programming language
- ❖ To know the principles of packages, inheritance and interfaces
- ❖ To develop a java application with threads and generics classes
- ❖ To define exceptions and use I/O streams
- ❖ To design and build Graphical User Interface Application using JAVA FX

Text Books:

T1: Herbert Schildt, “Java: The Complete Reference”, 11th Edition, McGraw Hill Education, New Delhi, 2019

T2: Herbert Schildt, “Introducing JavaFX 8 Programming”, 1st Edition, McGraw Hill Education, New Delhi, 2015

Reference Books:

1. Cay S. Horstmann, “Core Java Fundamentals”, Volume 1, 11th Edition, Prentice Hall, 2018.

Course Plan:

Topic No	Topic Name	Reference Detail	Page No	Teaching Methodology	No of periods required	Cumulative periods
UNIT I OVERVIEW						(9)
1.	Overview of OOP– Object oriented programming paradigms	T3	1.2	BB	1	1
2.	Features of Object Oriented Programming – Java Buzzwords	T3	1.2	BB/ PPT	1	2
3.	Overview of Java – Data Types, Variables and Arrays	T3	1.11	BB/ PPT	1	3
4.	Operators – Control Statements	T3	1.19	BB/ PPT	1	4
5.	Programming Structures in Java	T3	1.56	BB/ PPT	1	5
6.	Defining classes in Java	T3	1.56	BB/ PPT	1	6
7.	Constructors-Methods	T3	1.59	BB/ PPT	1	7
8.	Access specifiers -Static members	T3	1.63	BB/ PPT	1	8
9.	JavaDoc comments	T3	1.67	BB/ PPT	1	9
Outcome of Unit I:						
<ul style="list-style-type: none"> • Apply the concepts of classes and objects to solve simple problems 						
UNIT II						(9)
10.	Returning Objects –Static, Nested and Inner Classes	T1	161-170	BB/ PPT	1	10
11.	Inheritance: Basics– Types of Inheritance	T1	174-175	BB/ PPT	1	11
12.	Super keyword -Method Overriding	T1	180-183, 185-187	BB/ PPT	1	12
13.	Dynamic Method Dispatch	T1	184-185	BB/ PPT	1	13
14.	Abstract Classes–final with	T1	196-200	BB/ PPT	1	14

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	Inheritance					
15.	Packages and Interfaces	T1	200-208	BB/ PPT	1	15
16.	Packages – Packages and Member Access	T2	249-255, 258-260	BB/ PPT	1	16
17.	Importing Packages–Interfaces.	T2	204-210	BB/ PPT	1	17
18.	Overloading Methods – Objects as Parameters	T2	53-63	BB/ PPT	1	18

Outcome of UnitII:

- Develop programs using inheritance, packages and interfaces.

UNIT–III**(9)**

19.	Exception Handling basics–Multiple catch Clauses	T1	207-208	BB/ PPT	1	19
20.	Nested try Statements–Java’s Built-in Exceptions	T1	208-219	BB/ PPT	1	20
21.	User defined Exception. Multithreaded Programming	T1	220-225	BB/ PPT	2	22
22.	Java Thread Model– Creating a Thread and Multiple Threads	T2	566-568	BB/ PPT	1	23
23.	Priorities– Synchronization	T1	289-290	BB/ PPT	2	25
24.	Inter Thread Communication-Suspending	T1	290-293	BB/ PPT	2	27
25.	Resuming, and Stopping Threads	W2	-	BB/ PPT	1	28
26.	Multithreading. Wrappers–Auto boxing	T1	231-232	BB/ PPT	1	29

Outcome of Unit III:

- Make use of exception handling mechanisms and multithreaded model to solve realworld problems

UNIT -IV**(9)**

27.	I/O Basics–Reading and Writing Console I/O	T1	232-244	BB	1	30
28.	Reading and Writing Files. Generics	T1	245-251	BB/ PPT	1	31
29.	Generics: Generic Programming	T2	734-735	BB	1	32
30.	Generic classes – Generic Methods	T2	613-618	BB/ PPT	1	33
31.	Bounded Types – Restrictions and Limitations	T2	618-629	BB/ PPT	1	34
32.	Basic String class	W2	-	BB/ PPT	1	35
33.	methods and String Buffer Class	T1	231-232	BB/ PPT	1	36

Outcome of Unit IV:

- Build Java applications with I/O packages, string classes, Collections and generics Concepts

UNIT-V**(9)**

34	JAVAFX Events and Controls: Event Basics	T2	281-306	BB/ PPT	1	37
35.	Handling Key and Mouse Events	T2	294-321	BB/ PPT	1	38

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36.	Checkbox ,Toggle Button	T2	323-340	BB/ PPT	1	39
37.	Toggle Button–Radio Buttons	T2	342-350	BB	1	40
38.	Radio Buttons–List View	T2	350-360	BB/ PPT	1	41
39.	Combo Box–Choice Box–Text Controls	T2	282-285, 368-400	BB/ PPT	1	42
40.	Scroll Pane .Layouts, Flow Pane – HBox and VBox	T2	377-400	BB/ PPT	1	43
41.	Border Pane–Stack Pane–Grid Pane. Menus	T2	385-391	BB/ PPT	1	44
42.	Basics–Menu – Menu bars – Menu Item.	T2	392-421	BB/ PPT	1	45

Outcome of Unit-V

- Integrate the concepts of event handling
- Integrate JavaFX components and controls for developing GUI based applications

Course Outcomes - Program Outcome Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	1	-	2	-	-	-	-	1	-	-	3	3
CO2	3	1	3	-	2	-	-	-	-	1	-	-	3	3
CO3	3	2	3	-	2	-	-	-	-	1	-	-	3	3
CO4	3	2	3	-	2	-	-	-	-	1	-	-	3	3
CO5	2	1	3	-	2	-	-	-	-	1	-	-	3	3
CO6	2	1	3	-	2	-	-	-	-	1	-	-	3	3
Avg	2.67	1.33	2.67	-	2	-	-	-	-	1	-	-	3	3

[Levels of correlation: 3(High), 2(Medium), 1(Low)]

Content beyond Syllabus /Gap identification:

Assignment: 1

Register Number	Total Number	Mode of Assignment MCQ/Seminar/PPT	Topics
Assignment:1			
		Written	<ul style="list-style-type: none"> • Features of Object Oriented Programming – Java Buzzwords • Operators – Control Statements
Assignment:2			
		PPT	<ul style="list-style-type: none"> • Inheritance: Basics– Types of Inheritance • Packages and Interfaces
Assignment:3			
		Seminar	<ul style="list-style-type: none"> • Nested try Statements–Java’s Built-in Exceptions • Inter Thread Communication- Suspending
Assignment:4			

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		Case study Report/Mini Project/Model	<ul style="list-style-type: none"> Bounded Types – Restrictions and Limitations Reading and Writing Files. Generics
Assignment:5			
		Written/MCQ	<ul style="list-style-type: none"> Toggle Button – Radio Buttons Basics – Menu – Menu bars – Menu Item.

Submission Details:

Phase 1(Before AT 1)		Phase 2 (Before AT 2)		Phase 3 (Model)
Assignment 1	Assignment 2	Assignment 3	Assignment 4	Assignment 5

PLAN OF ASSESSMENT TEST -DISTRIBUTION OF MARKS:

TEST	CO- MARK WISE DISTRIBUTION						BLOOM'S LEVEL MARK WISE DISTRIBUTION					
	CO1	CO2	CO3	CO4	CO5	CO6	BTL1	BTL2	BTL3	BTL4	BTL5	BTL6
AT-1	37	23	--	--	--	--	21	23	16	--	--	--
	--	--	37	23	--	--	--	--	--	--	--	--
AT-2	37	23	--	--	--	--	21	23	16	--	--	--
	--	--	37	23	--	--	--	--	--	--	--	--
MODEL	20	20	20	20	20	--	--	--	--	--	--	--
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Google Class Code Details:

Class Name: II IT-OOPS

Class Code: fsbteab

Prepared by

Verified By

**Approved By
Principal**