Course Title:	Object Oriented Programming				Course Code:	R204GA05302
Class & Sem:	II B. Tech I Sem Section A & B				Regulations:	SRIT-R20
Course Structure:	Theory	Tutorial	Lab	Credits	Core/Elective:	Core
	3	0	0	3		
Instructor 1:	Dr. P. CHITRALINGAPPA			Instructor 2:		AY: 2023-24

1. Prerequisites: Action Script, Procedural Languages, Object-Oriented Languages.

2. Course Description: This course deals with the concepts of Introduction, Data Types, Operators and Expressions, Classes and Methods, Inheritance, Exceptions, Packages, Interfaces, I/O, packages, collection Framework, AWT components, Event handling and swings.

3. Detailed Syllabus:

UNIT – I: (13 Periods)

Introduction to Java: Object Oriented Programming, History and Evolution of java, Java's magic: The byte code, Java Buzzwords, Java Keywords, The Java class Libraries.

Data Types, Operators and Control Statements: Java Data Types, Variables and Constants, Naming Conventions, Type conversion and casting, Arrays, Operators & Expressions, Java Control Statements.

Introducing Classes and Methods: Classes and Objects, Introducing Methods, Constructors, this Keyword, Garbage Collection. Overloading Methods and Constructors, Argument passing, Recursion, Introducing Access Control, understanding static, Command Line Arguments, Exploring the String class.

UNIT – II: (11 Periods)

Inheritance: Basics, super keyword, method overriding, dynamic method dispatch, Abstract classes, using final with inheritance, Introducing Nested and Inner classes.

Exception Handling: Fundamentals, Exception Types, Using try and catch, Multiple catch clauses, Nested try statements, throw, throws, finally, Java Built-in Exceptions, Creating user-defined exceptions.

UNIT – III: (14 Periods)

Packages and Interfaces: Basics of Packages, Access protection, Importing Packages, Creating and Importing User-defined Packages.

Interfaces: Declaring, Implementing and Extending Interfaces, using static methods in an Interface, using final keyword in interfaces.

Multithreaded Programming: Multithreading in Java, The Java Thread Model, Life Cycle of a Thread, the main thread, Creating Thread, Creating Multiple Threads, Thread Priorities, Synchronization, Inter Thread Communication, Suspending, resuming and stopping threads, obtaining a thread state, The finalize () method.

UNIT – IV: **(11 Periods)**

Collections Framework: Overview, Collection Interfaces, Collection Classes. Working with Maps, Comparators.

Introduction to AWT: Windows, Graphics and Text

AWT classes, window fundamentals, frame windows, creating and displaying information within a window, Graphics, Color, Fonts, managing text output using Font Metrics.

UNIT – V: **(14 Periods)**

Event Handling in Java: The Delegation Event Model, Event Classes and Event Listener Interfaces.

AWT Controls, Layout Managers, and Menus: AWT Control Fundamentals, Labels, Buttons, Check Boxes, CheckboxGroup, Choice Controls, Lists, Scroll Bars, TextField and TextArea, Layout Managers, Menu Bars and Menus, Dialog Boxes, FileDialog.

Swings: Swing Features, MVC Connection, Components and Containers, JLabel, ImageIcon, JTextField, Swing Buttons, Check Boxes, Radio Buttons, JTabbedPane, JScrollPane, JList, JComboBox, JTree, and JTable.

Total Periods: 63

4. Text Books:

1. **"The Complete Reference -Java",** Herbert Schildt, Mc GRAW HILL Edition, 11th Edition, 2018.
2. **"Java – How to Program"**, Paul Deitel, Harvey Deitel, PHI, 11th Edition, 2017.

5. Reference Books:

1. **"A Programmers Guide to Java SCJP"**, Third Edition, Mughal, Rasmussen, Pearson, 2009.
2. **"Programming with Java"** T.V.Suresh Kumar, B.Eswara Reddy, P.Raghavan Pearson Edition, 2011.
3. **"Java Fundamentals - A Comprehensive Introduction"**, Herbert Schildt and Dale Skrien, Special Indian Edition, McGrawHill, 2013.

6. Course Outcomes:

On successful completion of this course the students will be able:

1. Describe the object-oriented principles in Java.
2. Develop programs using type casting, type promotion control statements for efficient problem solving.
3. implement Inheritance and Exceptional handling for problem solving.
4. Implement threaded programming and usage of inheritance and packages.
5. Develop programs using Collection Framework and AWT frame work.
6. Develop programs using layout manager, Swing frame work and AWT controls suitable for the given problem scenario.

7. Lesson Plan

S. No.	Topics to be covered	Mode of Delivery	Periods Required	Books followed	Scheduled Date
UNIT I **Introduction to Java, Data types, Arrays and Variables, Operators, Control Statements, Introducing Classes**					
1	Introduction to JAVA – Object Oriented Programming	ICT	1	T1, T2, R1	28-08-2023
2	History and Evolution of java,	ICT	1	T1, T2, R1	28-08-2023
3	Java's magic: The byte code, Java Buzzwords, OOP Concepts, Java Keywords,	ICT	1	T1, T2, R1	29-08-2023
4	The Java class Libraries	ICT	2	T1, T2, R1	30-08-2023
5	Java Data Types, Variables and Constants,	ICT	1	T1, T2, R1	31-08-2023
6	Naming Conventions,	ICT	1	T1, T2, R1	07-09-2023
7	Type conversion and casting, Arrays	ICT	1	T1, T2, R1	12-09-2023
8	Operators & Expressions, Java Control Statements, Classes and Objects	ICT	1	T1, T2, R1	12-09-2023
9	Introducing Methods, Constructors, this Keyword, Garbage Collection.	ICT	1	T1, T2, R1	13-09-2023
10	Overloading Methods and Constructors	ICT	1	T1, T2, R1	14-09-2023
11	Argument passing, Recursion, Introducing Access Control, understanding static, Command Line Arguments, Exploring the String class.	ICT	2	T1, T2, R1	19-09-2023
UNIT II **Inheritance, Exception Handling**					
1	Inheritance: Basics, super keyword, method overriding	ICT	2	T1, T2, R1	20-09-2023
2	dynamic method dispatch,	ICT	1	T1, T2, R1	21-09-2023
3	Abstract classes, using final with inheritance	ICT	1	T1, T2, R1	26-09-2023
4	Introducing Nested and Inner classes, Exception Handling: Fundamentals	ICT	2	T1, T2, R1	27-09-2023
5	Exception Types, Using try and catch	ICT	1	T1, T2, R1	28-10-2022

6	Multiple catch clauses	ICT	1	T1, T2, R1	2-10-2023
7	Nested try statements, throw, throws	ICT	1	T1, T2, R1	2-10-2023
8	finally, Java Built-in Exceptions	ICT	1	T1, T2, R1	3-10-2023
9	Creating user- defined exceptions	ICT	1	T1, T2, R1	4-10-2023
UNIT III **Packages, Interfaces and Multithreading**					
1	Packages: Basics, Access protection, Importing Packages	ICT	2	T1, T2, R1	11-10-2023
2	Creating and Importing User-defined Packages	ICT	1	T1, T2, R1	16-10-2023
3	Interfaces: Declaring, Implementing and Extending Interfaces, using static methods in an Interface	ICT	1	T1, T2, R1	16-10-2023
4	using final keyword in interfaces, Multithreaded Programming: Multithreading in Java	ICT	1	T1, T2, R1	17-10-2023
5	The Java Thread Model	ICT	1	T1, T2, R1	18-10-2023
6	Life Cycle of a Thread, the main thread, Creating Thread	ICT	1	T1, T2, R1	30-10-2023
7	Creating Multiple Threads	ICT	1	T1, T2, R1	30-10-2023
8	Thread Priorities, Synchronization, Inter Thread Communication, Suspending	ICT	2	T1, T2, R1	1-11-2023
9	resuming and stopping threads	ICT	1	T1, T2, R1	2-11-2023
10	Obtaining a thread state, the finalize () method	ICT	1	T1, T2, R1	7-11-2023
UNIT IV **Collections Framework & Introduction to AWT**					
1	Collections Framework: Overview & Introduction to AWT, Collection Interfaces	ICT	2	T1, T2, R1	8-11-2023
2	Collection Classes	ICT	2	T1, T2, R1	9-11-2023
3	Working with Maps, Comparators	ICT	1	T1, T2, R1	14-11-2023
4	Introduction to AWT: Graphics and Text AWT Classes, Windows fundamentals	ICT	1	T1, T2, R1	14-11-2023
5	frame windows	ICT	2	T1, T2, R1	15-11-2023

6	creating and displaying information within a window Graphics, Color, Fonts	ICT	2	T1, T2, R1	16-11-2023
7	Managing text output using Font Metrics	ICT	1	T1, T2, R1	21-11-2023
UNIT V Introduction to AWT, Event Handling, Swings					
1	Event Handling in Java: The Delegation Event Model	ICT	1	T1, T2, R1	22-11-2023
2	Event Classes and Event Listener Interfaces	ICT	1	T1, T2, R1	23-11-2023
3	AWT Controls, Layout Managers, and Menus: AWT Control Fundamentals, Labels, Buttons, Check Boxes	ICT	1	T1, T2, R1	28-11-2023
4	Checkbox Groups, Choice Controls, Lists, Scroll Bars	ICT	1	T1, T2, R1	28-11-2023
5	TextField and TextArea	ICT	1	T1, T2, R1	29-11-2023
6	Layout Managers, Menu Bars and Menus	ICT	1	T1, T2, R1	05-01-2024
7	Dialog Boxes, File Dialog	ICT	1	T1, T2, R1	06-01-2024
8	Swings: Swing Features, MVC Connection	ICT	1	T1, T2, R1	11-01-2024
9	Components and Containers	ICT	1	T1, T2, R1	12-01-2024
10	JLabel, ImageIcon, JTextField	ICT	1	T1, T2, R1	12-01-2024
11	Swing Buttons, Check Boxes, Radio Buttons, JTabbedPane	ICT	1	T1, T2, R1	18-01-2024
12	JScrollPane, JList	ICT	1	T1, T2, R1	18-01-2024
13	JComboBox	ICT	1	T1, T2, R1	19-01-2024
14	JTree, and JTable	ICT	1	T1, T2, R1	20-01-2024

7. Additional Topics:

S. No.	Topic	Course Outcome
1		
2		
3		
4		
5		

8. Course Assessment & Evaluation:

Mode of assessment	Frequency	Marks
Mid-Term Examinations (Internal)	Two exams CIE-1 and CIE-2 will be conducted. The consolidated CIE marks will be arrived by considering the marks secured by the student in both the CIEs with 80% weightage given to the better CIE and 20% to the other. For each theory course, during the semester, there shall be two CAAs. Each CAA will be evaluated for 10 marks. The consolidated CAA marks will be arrived by considering the average of marks secured by the student in both the CAAs. The final marks for CIA (for 40 marks) = Consolidated CIE marks (for 30 marks) + Consolidated CAA marks (for 10 marks)	40
Semester End Examinations (External)	Once	60
Total		**100**

9. Mapping(X) of Course Outcomes with Program Outcomes & Program Specific Outcomes:

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
CO1	x		x											x	
CO2			x											x	
CO3			x											x	
CO4			x											x	
CO5			x											x	
CO6			x											x	

Course Coordinator

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