DHANALAKSHMI SRINIVASAN ENGINEERING COLLEGE
(AUTONOMOUS)
(Approved by AICTE & Affiliated to Anna University, Chennai)
Accredited with 'A' Grade by NAAC, Accredited by TCS
Accredited by NBA with BME, ECE & EEE
PERAMBALUR - 621 212. Tamil Nadu.
website : www.dsengg.ac.in

COURSE PLAN (2024-2025 ODD SEMESTER)

Name of the Faculty				
Designation/Department	ASSISTANT PROFESSOR/IT			
Course Code/Name	U20IT501 /JAVA PROGRAMMING			
Year/Section/Department	III / IT			
Credits Details	L: 3	T: 0	P: 0	C: 3
Total Contact Hours Required	45			

Syllabus:

UNIT I CLASS, METHODS AND STRINGS	**No. of Periods 9**
History and Evolution of Java - An Overview of Java – Data types, variables, and Arrays- Operators – Control Statement – Introducing Class - Methods – String, String Buffer, String Builder	
UNIT II INHERITANCE, PACKAGE, INTERFACE AND EXCEPTION HANDLING	**No. of Periods 9**
Inheritance, Packages and Interfaces - Exception Handling Fundamentals – Exception Types – Uncaught Exception – Using try and catch – Multiple catch Clauses – Nested try statement – throw – throws – finally – Built-in Exception- Creating our own Exception class – Chained Exception.	
UNIT III - GUI AND DATABASE CONNECTIVITY	**No. of Periods 9**
Introducing Swing – Exploring Swing: JLabel, Image Icon, JTextField, JButton, JList, JComboBox and JTable - Event Handling –- JDBC Programming concept – Executing Queries – Scrollable and Updatable Resultset.	
UNIT IV I/O AND THE COLLECTIONS FRAMEWORK	**No. of Periods 9**
I/O Basics – Exploring java.io: Stream Class, Character Streams – Serialization - The Collections Framework – The Array List class – The HashSet class – Working with maps – The Vector class - Accessing a Collection via an Iterator.	
UNIT V THREADS, GENERICS AND FUNCTIONAL PROGRAMMING	**No. of Periods 9**
Threads - Interrupting Threads - Thread States - Thread Properties – Synchronization - Auto Boxing – Generics – Lambda Expressions - Functions as First Class Objects -Pure Functions -Higher Order Functions.	

Objective:

- To learn about basics concepts of Java.
- To study about Inheritance and it types.
- To implement interfacing and threading mechanism.
- To developed I/O and the collections framework.
- To learn the Generics and functional Programming.

Text Book:

T1: Herbert Schildt, "JavaTM : The Complete Reference", 9th edition, Oracle Press, 2014.
T2. Anita Seth, B. L. Juneja, "JAVA: One Step Ahead", Oxford University Press, 2017.

Reference Book:

R1. Cay S. Horstmann and Gary Cornell, "Core Java: Volume I Fundamentals", 9th edition, Prentice Hall, 2013.
R2. K. Arnold, D. Holmes and J. Gosling, "The JAVA programming language", 4th edition, Addison Wesley Professional, 2005.
R3. Timothy Budd, "Understanding Object-oriented programming with Java", 3rd edition, Addison Wesley,

Website:

W1: http://nptel.ac.in/.
W2: https://www.digimat.in/nptel/courses/video/106105191/L01.html.
W3: https://www.javatpoint.com/java-tutorial

Course Plan:

Topic Number	Topic	Reference Detail	Page Number	Mode of teaching	Number of Periods Required	Cumulative Period
UNIT I- CLASS, METHODS AND STRINGS						
1	History and Evolution of Java	T1	110-120	BB	1	1
2	An Overview of Java	T1	120-125	BB	1	2
3	Data types, variables, and Arrays- Operators	T1	125-130	BB	1	3
4	Control Statement	T1	130-132	BB	1	4
5	Introducing Class	T1	132-135	BB	1	5
6	Methods	T1	135-140	BB	1	6
7	String,	T1	140-152	BB	1	7
8	String Buffer,	T1	152-162	BB	1	8
9	String Builder	T2	163-165	BB	1	9
Outcome of Unit I: **At the end of unit , the students will be able to:** **CO1:** Explain the basic features of Java to write program. **CO2:** Compare the between methods, string and data types. **CO3:** Summarize about the control statement, looping statements and string buffers.						
UNIT II- INHERITANCE, PACKAGE, INTERFACE AND EXCEPTION HANDLING						
10	Inheritance	T1	185-192	BB	1	10
11	Packages and Interfaces	T1	192-200	PPT	1	11
12	Exception Handling Fundamentals	T1	201-210	BB	1	12
13	Exception Types	T1	210-216	BB	1	13
14	Uncaught Exception – Using try and catch	T1	216-218	BB	1	14
15	Multiple catch Clauses – Nested try statement	T1	218-223	BB	1	15
16	throw – throws – finally	T1	223-225	BB	1	16
17	Built-in Exception	W3	-	BB	1	17
18	Creating our own Exception class – Chained Exception	R1	246-256	BB	1	18
Outcome of Unit II: **At the end of unit , the students will be able to:** **CO1:** Use of inheritance, package, interface and exceptions to write efficient programs.						

CO2: Explain the basic types of inheritance and exception handling.
CO3: Analysis about the package and interface concepts.

UNIT III- GUI AND DATABASE CONNECTIVITY						
19	Introducing Event Handling	T1	338	BB	1	19
20	Exploring Swing:	T1	355	BB	1	20
21	JLabel, Image Icon,	T1	365	BB	1	21
22	SwingJTextField, JButton, JList, JComboBox and JTable	T1	371	BB	1	22
23	JDBC Programming concept	T1	378	BB	1	23
24	Executing Queries	R2	211	BB	1	24
25	Executing Queries	R2	222	BB	1	25
26	Scrollable and Updatable Result set	T1	415	BB	1	26
27	Scrollable and Updatable Result set	T1	416	BB	1	27

Outcome of Unit III:
At the end of unit , the students will be able to:
CO1: Apply collection framework for writing efficient programs for real time applications.
CO2: Teach the Graphical User interface and its usages.
CO3: Develop GUI based data driven application using JDBC.

UNIT IV- I/O AND THE COLLECTIONS FRAMEWORK						
28.	I/O Basics	T1	438	BB	1	28
29.	Exploring java.io:	T1	439	BB	1	29
30.	Stream Class	T1	444	BB	1	30
31.	Character Streams	T1	459	PPT	1	31
32.	Serialization	T1	488	BB	1	32
33.	The Collections Framework	W1	---	BB	1	33
34.	The Array List class – The HashSet class	T1	657	BB	1	34
35.	Working with maps, The Vector class	T1	802	BB	1	35
36.	Accessing a Collection via an Iterator.	T1	809	BB	1	36

Outcome of Unit IV:
At the end of unit , the students will be able to:
CO1: Develop the Collection framework operation & its types.
CO2: Explain the I/O basics and its operations.

CO3: Compare the difference of input and output operation and collection framework methods.

UNIT V- THREADS, GENERICS AND FUNCTIONAL PROGRAMMING						
37.	Threads	W2	---	PPT	1	37
38.	Interrupting Threads	W2	---	PPT	1	38
39.	Thread States	T1	133	BB	1	39
40.	Thread Properties	T1	181	BB	1	40
41.	Synchronization - Auto Boxing	T1	186	BB	1	41
42.	Generics – Lambda Expressions	T1	148	BB	1	42
43.	Functions as First Class Objects	T1	151	BB	1	43
44.	Pure Functions	T1	159	BB	1	44
45.	Higher Order Functions	T1	828	BB	1	45

Outcome of Unit V:

At the end of unit , the students will be able to:

CO1: Use the Thread operation and advanced functional programming.

CO2: Summarize the Generics Lambda Expressions.

CO3: Compare the thread, generics and functional programming.

Course Outcome:

At the end of course:

CO1: Explain the basic features of Java to write program. (K2)

CO2: Use of inheritance, package, interface and exceptions to write efficient programs. (K3)

CO3: Apply collection framework for writing efficient programs for real time applications. (K3)

CO4: Develop GUI based data driven application using JDBC.(K3)

CO5: Use the Thread operation and its programs (K3)

CO6: Compare the thread, generics and functional programming (K2)

Course Outcome Vs Program Outcome Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	2	2	-	-	-	-	-	-	-	2	2
CO2	3	3	2	2	2	-	-	-	-	-	-	-	3	3
CO3	3	2	1	1	1	-	-	-	-	-	-	-	3	3
CO4	3	2	2	2	1	-	-	-	-	-	-	-	3	3
CO5	3	3	2	2	1	-	-	-	-	-	-	-	3	3
CO6	2	2	2	1	1	-	-	-	-	-	-	-	2	2
AVG	2.83	2.5	1.83	1.67	1.33	-	-	-	-	-	-	-	2.67	2.67

Content beyond Syllabus:

- Object Relational Object.
- Web Frameworks.
- JUnits.
- Working with Servlet and JDBC

Assignment:

BATCH	Register Number Total Number	TOTAL NO OF STUDENTS	MODE OF ASSIGNMENT	TOPICS
Assignment: 01				
Batch 1	810422205001-8104222050127, 301-306	137	Written	1.Data types, variables, and Arrays-Operators(CO1) 2.Control Statement(CO1) 3. Inheritance(CO2) 4.History and Evolution of Java 6.Data types(CO1) 7.Packages and Interfaces (CO2) 8.Exception Handling Fundamentals (CO2) 9.Exception Types(CO2)
Assignment: 02				
Batch 1	810422205001-8104222050127, 301-306	137	Poster Presentation / PPT	1.JLabel, Image Icon, JTextField, 2.JButton, JList, JComboBox and JTable(CO3) 3. Event Handling. (CO3) 4.JDBC Programming concept. (CO3)
Assignment: 03				
Batch 1	810422205001-8104222050127, 301-306	137	Seminar	1. I/O Basics & Exploring java.io: (CO4) 2. Stream Class, Character Streams. (CO4) 3. Serialization. (CO4) 4. The Collections Framework. (CO4)
Assignment: 04				
Batch 1	810422205001-8104222050127, 301-306	137	Case study report/Mini Project/model	4.The Array List class & The HashSet class. (CO5) 5.The Vector class (CO5)
Assignment: 05				
Batch 1	810422205001-8104222050127, 301-306	137	MCQ	6.Generics &Lambda (CO6) 7. Functions as First Class Objects. (CO6) 9. Interrupting Threads. (CO6) 10. Thread States. (CO6)

Submission Details:

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

Prepared By **Verified By**

AP/IT **HOD/IT**

Approved By

PRINCIPAL