SRI KRISHNA INSTITUTE OF TECHNOLOGY

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#29, Chimney Hills, Hesaraghatta Main Road, Chikkabanavara Post, Bangalore- 560090

Department of Artificial Intelligence and Machine learning

Academic Year: 2021-2022	Semester: IV
Course Name: Object oriented concepts	Course Code: 18CS45
Total Contact hours: 40	Credits:03
SEE Marks: 60; CIE: 40	Total Marks: 100
Course Plan Author: Prof.Ramya H	Date: 24-3-2022

Course Prerequisites: Programing in C &Data structures

Course Objectives: Learn fundamental features of object oriented language and JAVA
• Set up Java JDK environment to create, debug and run simple Java programs.
• Create multi-threaded programs and event handling mechanisms.
• Introduce event driven Graphical User Interface (GUI) programming using applets and swings.

Course Outcomes: Explain the object-oriented concepts and JAVA.
• Develop computer programs to solve real world problems in Java.
• Develop simple GUI interfaces for a computer program to interact with users, and to understand the event-based GUI handling principles using swings.

CO Number	Course Outcome At the end of the course, student should be able to . . .	Blooms' Level
CO1	Explain the object-oriented concepts and JAVA.	L1,L2,L3
CO2	Develop computer programs to solve real world problems in Java.	L1,L2,L3
CO3	Develop simple GUI interfaces for a computer program to interact with users, and to understand the event-based GUI handling principles using swings.	L1,L2,L3

Program Outcomes and Program Specific Outcomes jm

PO1	Engineering Knowledge;
PO2	Problem Analysis;
PO3	Design / Development of Solutions;
PO4	Conduct Investigations of Complex Problems;
PO5	Modern Tool Usage;
PO6	The Engineer and Society;

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PO7	Environment and Sustainability;
PO8	Ethics;
PO9	Individual and Teamwork;
PO10	Communication;
PO11	Project Management and Finance;
PO12	Life-long Learning;
PSO1	Graduates will have the ability to adapt, contribute and innovate ideas in the field of Artificial Intelligence and Machine Learning
PSO2	To provide a concrete foundation and enrich their abilities to qualify for Employment, Higher studies and Research in various domains of Artificial Intelligence and Machine Learning such as Data Science, Computer Vision, Natural Language Processing with ethical values
PSO3	Graduates will acquire the practical proficiency with niche technologies and open source platforms and to become Entrepreneur in the domain of Artificial Intelligence and Machine Learning

CO – PO Mapping

Course Outcomes	Program Outcomes														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3				2				2			2	3		
CO2	3	2	2		2				2			2	3		
CO3	3	2	2		2				2			2	3		

Course Content (Syllabus)

Module 1
Introduction to Object Oriented Concepts: A Review of structures, Procedure–Oriented Programming system, Object Oriented Programming System, Comparison of Object Oriented Language with C, Console I/O, variables and reference variables, Function Prototyping, Function Overloading. Class and Objects: Introduction, member functions and data, objects and functions. Text book 1: Ch 1: 1.1 to 1.9 Ch 2: 2.1 to 2.3 RBT: L1, L2

Module 2
 Class and Objects (contd): Objects and arrays, Namespaces, Nested classes, Constructors,

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Destructors. Introduction to Java: Java"s magic: the Byte code; Java Development Kit (JDK); the Java Buzzwords, Object-oriented programming; Simple Java programs. Data types, variables and arrays, Operators, Control Statements.
Text book 1:Ch 2: 2.4 to 2.6Ch 4: 4.1 to 4.2
Text book 2: Ch:1 Ch: 2 Ch:3 Ch:4 Ch:5 RBT: L1, L2

Module 3
Classes, Inheritance,Exception Handling: Classes: Classes fundamentals; Declaring objects; Constructors, this keyword, garbage collection. Inheritance: inheritance basics, using super, creating multi level hierarchy, method overriding. Exception handling: Exception handling in Java.
Text book 2: Ch:6 Ch: 8 Ch:10 RBT: L1, L2, L3

Module 4
Packages and Interfaces:Packages, Access Protection,ImportingPackages.Interfaces. Multi ThreadedProgramming:Multi Threaded Programming: What are threads? How to make the classes threadable ; Extending threads; Implementing runnable; Synchronization; Changing state of the thread; Bounded buffer problems, producer consumer problems.
Text book 2: CH: 9 Ch 11: RBT: L1, L2, L3

Module 5
Event Handling: Two event handling mechanisms; The delegation event model; Event classes; Sources of events; Event listener interfaces; Using the delegation event model; Adapter classes; Inner classes. Swings: Swings: The origins of Swing; Two key Swing features; Components and Containers; The Swing Packages; A simple Swing Application; Create a Swing Applet; Jlabel and ImageIcon; JTextField;The Swing Buttons; JTabbedpane; JScrollPane; JList; 08 JComboBox; JTable.
Text book 2: Ch 22: Ch: 29 Ch: 3

Schedule of Instruction

Sl.no	Class no	Module	Topic	Reference (Book, Page no.)	Course Outcome	Delivery mode
1	2	**Module1:**	Introduction to Object Oriented Concepts: A Review of structures, Procedure–Oriented Programming system	T1, 1-5	CO1	ICT
2	3		Object Oriented Programming System, Comparison of Object Oriented Language with C	T1, 7-8	CO1	ICT
3	4		Console I/O	T1, 9-12	CO1	ICT
4	5		variables and reference variables,	T1,13-14	CO1	ICT
5	7		Function Prototyping, Function Overloading.	T1,19-21	CO1	ICT
6	8		Class and Objects: Introduction,	T1,31-48	CO1	ICT
7	9		member functions and data,	T1,49-59	CO1	ICT

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8	11		objects and functions.	T1,65	CO1	ICT
9	12	**Module 2:**	Objects and arrays, Namespaces,	T1,66-68	CO1	ICT
10	14		Nested classes, Constructors, Destructors.	T1,71-109	CO1	ICT
11	15		Introduction to Java: Java"s magic: the Byte code; Java Development Kit (JDK); the Java Buzzwords	T2,9-13	CO1	ICT
12	16		Object-oriented programming; Simple Java programs.	T2,15-22	CO1	ICT
13	17		Data types	T2,33-40	CO1	ICT
14	18		variables	T2,41-47	CO1	ICT
15	19		arrays	T2,48-55	CO1	ICT
16	20		Operators	T2,57-74	CO1	ICT
17	22		Control Statements.	T2,77-103	CO1	ICT
18	24	**Module 3:**	Classes: Classes fundamentals; Declaring objects	T2, 105-109	CO2	ICT
19	25		Constructors, this keyword	T2,117-121	CO2	ICT
20	26		garbage collection	121	CO2	ICT
21	27		Inheritance	T2,157-160	CO2	ICT
22	28		Inheritance: inheritance basics,	T2,160-162	CO2	ICT
23	29		using super, creating multi level hierarchy	T2,163-167	CO2	ICT
24	30		method overriding	T2,171	CO2	ICT
25	31		Exception handling:	T2, 205-211	CO2	ICT
26	32		Exception handling in Java.	T2,211-217	CO2	ICT
27	33		Exception handling in Java.	T2,217-222	CO2	ICT
28	34	**Module 4:**	Packages and Interfaces:Packages	T2,183-185	CO2	ICT
29	35		AccessProtection,ImportingPackages	T2,186-190	CO2	ICT
30	36		Interfaces.	T2,192-202	CO2	ICT
31	38		Multi ThreadedProgramming:Multi Threaded Programming:	T2, 223-226	CO2	ICT
32	40		What are threads? How to make the classes threadable	T2, 226	CO2	ICT

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33	42		Extending threads; Implementing runnable;	T2, 228-230	CO2	ICT
34	43		Synchronization;	T2,238	CO2	ICT
35	44		Changing state of the thread;	RBT	CO2	ICT
36	45		Bounded buffer problems, producer consumer problems.	RBT	CO2	ICT
37	46	**Module 5:**	Event Handling: Two event handling mechanisms; The delegation event model	T2,637-639	CO2,CO3	ICT
38	47		Event classes	T2,639-648	CO2,CO3	ICT
39	48		Sources of events; Event listener interfaces;	T2,649-653	CO2,CO3	ICT
40	49		Using the delegation event model; Adapter classes; Inner classes.	T2,653-662	CO2,CO3	ICT
41	50		Swings: Swings: The origins of Swing	T2,859-860	CO2,CO3	ICT
42	51		Two key Swing features; Components and Containers;	T2,860-863	CO2,CO3	ICT
43	52		A simple Swing Application	T2,864	CO2,CO3	ICT
44	53		Create a Swing Applet	T2,871	CO2,CO3	ICT
45	54		Jlabel and ImageIcon; JTextField;The Swing Buttons	T2,879-889	CO2,CO3	ICT
46	55		JTabbedpane; JScrollPane; JList;	T2,891-895	CO2,CO3	ICT

L – Lecture, V- Videos or any other mode

Textbooks	
T1	Sourav Sahay, Object Oriented Programming with C++ , 2nd Ed, Oxford University Press,2006
T2	Herbert Schildt, Java The Complete Reference, 7th Edition, Tata McGraw Hill, 2007.
Reference books	
R1	Mahesh Bhave and Sunil Patekar, "Programming with Java", First Edition, Pearson Education,2008, ISBN:9788131720806
R2	Herbert Schildt, The Complete Reference C++, 4th Edition, Tata McGraw Hill, 2003.
R3	Stanley B.Lippmann, JoseeLajore, C++ Primer, 4th Edition, Pearson Education, 2005.
R4	RajkumarBuyya,SThamarasiselvi, xingchenchu, Object oriented Programming with java, Tata McGraw Hill education private limited
R5	Richard A Johnson, Introduction to Java Programming and OOAD, CENGAGE Learning.

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R6	E Balagurusamy, Programming with Java A primer, Tata McGraw Hill companies.

Web links and Video Lectures (e-Resources):

1	
2	https://www.javatpoint.com/java-oops-concepts
3	
4	
5	

Assessment Schedule:

Sl.No.	Assessment type	Contents	CO	Duration In Hours	Marks	Date & Time
1	CIE Test 1	Module1,2	CO1	1:15	30	
2	CIE Test 2	Module3,4	CO1, CO2	1:15	30	
	CIE Test 3	Module 5	CO3	1:15	30	
3	Assignment 1	Module1,2	CO1		10	
4	Assignment 2	Module3,4	CO1, CO2		10	
5	Seminar *(or any planned activtiy)*	Module 5	CO3		10	

Seminar: Group of 6-8 students
Module 1,2,3,4 & 5

**The sum of total marks of three tests, two assignments, and seminar will be out of 100 marks and will be scaled down to 50 marks.

CIE + SEE = 50 + 50 = 100 marks

Faculty Incharge   DAC Chairman

** Please mention as per the scheme.