MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

COURSE PLAN

Department	Computer Science and Engineering		
Course Name	Object Oriented Programming	Course Code	CSE 2154
Semester	III	Curriculum	2018
Name of the faculty	Suma D	Academic year	2022-23
No. of Contact Hours/Week	L T P C: 3 1 0 4		

COURSE OUTCOMES (CO'S)

	At the end of this course, the student should be able to:	No. of Hours	Marks
CO1	Acquire knowledge of Object oriented programming along with CERT JAVA coding standard	16	32
CO2	Achieve reusability using Inheritance and Packages	10	26
CO3	Achieve high level reusability using Generics	4	8
CO4	Appreciate the use of exception handling and achieve concurrency through multithreading	10	20
CO5	Understand event handling and Design simple GUI based applications using Javafx	8	14
	Total hours/ Marks	**48**	**100**

ASSESSMENT PLAN

Components	Quiz/Assignments	Sessional Tests	End Semester/Make - Up Examinations
Duration	Quiz 1 & 2 [30 Mins each]	Sessional 1 & 2 [60 Mins each]	3 Hours
Weightage	20 % [10M+10M]	30% [15M+15M]	50% [50M]
Typology of Questions	Applying, Analysing and Evaluating	Understanding, Applying, Analysing and Evaluating	Understanding, Applying, Analysing and Evaluating
Pattern	Quizzes (MCQs and/or Fill in the blanks)	Short Answer Questions, Descriptive Questions and Design Questions	Short Answer Questions, Descriptive Questions and Design Questions
Schedule	Quiz 1: _____ Week of the semester Quiz 2: _____ Week of the semester	__Week of the Semester	End of semester
Topics covered	Quiz 1: L_ to L_ Quiz 2: L_ to L_	Sessional 1: L_ to L_ & Sessional 2: L_ to L_	Exam: L1 to L36

LESSON PLAN

Lecture No.	Topic	CO's addressed
L0	Introduction to Object oriented programming : Introduction to objects, inheritance, polymorphism, classes and methods.	-
L1	Java Programming Fundamentals: Java language, Java development kit, Simple Programs, The Java Keywords , Identifiers in Java, The Java Class Libraries	CO1
L2	Data types & Operators: Primitive data types, Literals, Variables and their scope, Operators and their precedence, Expressions	CO1
L3	Control structures: if, switch, for, while, do-while, break, continue	CO1
L4(T1)	JAVA language basics, simple example programs, examples on operators and expressions, expression evaluation	CO1
L5	INRODUCTION TO CLASSES, OBJECTS AND METHODS: Class Fundamentals, Creating Objects, Reference Variables and Assignment, simple Methods	CO1
L6	Returning from a method, Constructors, Parameterized Constructors, The new operator, Garbage Collection and Finalizers	CO1
L7	This keyword, Controlling Access to Class Members	CO1
L8(T2)	Pass Objects to Methods, Arguments Passing, Returning Objects	CO1
L9	Arrays and Strings, Array declaration and initialization	CO1
L10	Method Overloading, Overloading Constructors	CO1
L11	Understanding static , static members, static methods and static block	CO1
L12(T3)	Example Programs on Arrays and Strings , Array of objects	CO1
L13	INHERITANCE :Inheritance Basics, Member Access	CO2
L14	Constructors in subclass, Use super to Call Superclass Constructors and Access Superclass Members in subclass	CO2
L15	Creating Multilevel Hierarchy, Order of execution of Constructors Superclass References and Subclass Objects	CO2
L16(T4)	Method Overriding and Polymorphism, Using Abstract Classes	CO2
L17	Order of execution of constructors, Using Final,The Object Class , Example programs	CO2
L18	INTERFACES: Interface Fundamentals, Creating and Implementing an Interface	CO2
L19	Using Interface References, Implementing Multiple Interfaces, Constants in Interfaces, Extending Interfaces, Nested Interfaces	CO2
L20(T5)	PACKAGES: Package Fundamentals, Packages and Member Access	CO2
L21	Importing Packages, Static Import	CO2
L22	Creating and implementing interfaces and packages	CO2

L23	EXCEPTIONHANDLING: Exception Hierarchy, Exception Handling Fundamentals, Consequences of an Uncaught Exception	CO4
L24(T6)	Handling Errors through Exceptions, Using Multiple catch Clauses	CO4
L25	Nesting try blocks, Throwing an Exception, Closer look at Throwable class	CO4
L26	Checked and Unchecked exceptions, example programs	CO4
L27	Using finally, Using throws keywords	CO4
L28(T7)	Built-in Exceptions, Creating Exception Subclasses	CO4
L29	MULTITHREADED PROGRAMMING: Multithreading Fundamentals, The Thread Class and Runnable Interface	CO4
L30	Creating a Thread and Multiple Threads, Determining when a Thread Ends, Thread Priorities, Synchronization, Using Synchronized Methods	CO4
L31	The synchronized statement, Thread Communication, Suspending, Resuming and Stopping Threads	CO4
L32(T8)	Creating multiple threads, thread priorities, thread synchronization	CO4
L33	Generic fundamentals, Generic class	CO3
L34	Bounded types, using wildcard arguments	CO3
L35	Generic methods, Generic interfaces	CO3
L36(T9)	Generic constructors, Generic restrictions, example programs	CO3
L37	Introducing Javafx Gui Programming using Javafx: Basic concepts	CO5
L38	Application Skeleton, Event handling	CO5
L39	Event handling using Button, TextField and Label control	CO5
L40(T10)	Example program to handle events	CO5
L41	Exploring Javafx Controls: Toggle button, Radio button	CO5
L42	Check box, List view	CO5
L43	Combo box, Working with Canvas	CO5
L44(T11)	Example program which uses Checkbox, Canvas, List view	CO5
L45	CERT JAVA coding standard: Rules and Recommendations for Expressions, Rules and Recommendations for Numeric Types	CO1
L46	Rules and Recommendations for Characters and Strings	CO1
L47	Rules and Recommendations for Object Orientation and Methods	CO1
L48(T12)	Rules and Recommendations for Exceptional Behavior.	CO1

References:

	References
1	Herbert Schildt and Dale Skrien, *Java Fundamentals – A Comprehensive Introduction (1e),* McGrawHill, 2015
2	Herbert Schildt, *Java The Complete Reference, (10e)*, Tata McGrawHill, 2017
3	Fred Long, Dhruv Mohindra, Ebook:*CERT Oracle Secure Coding Standard for Java*, Addison Wesley , 2013
4	Fred Long, Dhruv Mohindra, Ebook:*Java Coding Guidelines: 75 Recommendations for Reliable and Secure Programs* , Addison Wesley ,2014
5	Herbert Schield , "Java A beginner's Guide". 6th Edition, 2014

Submitted by:
SUMA D

(Signature of the faculty)

Date: 16/08/2022

Approved by:
(Signature of HOD)

Date: 16/08/2022

FACULTY MEMBERS TEACHING THE COURSE (IF MULTIPLE SECTIONS EXIST):

FACULTY NAME	SECTION	FACULTY NAME	SECTION
Mr. Sivaselvan	A	Dr. Anup Bhat B	C
Mrs. Suma D	B	Dr. Andrew J	D

COURSE PLAN – ADDITIONAL DETAILS

At the end of this course, the student should be able to:		No. of contact Hours	Marks	Program outcomes (PO's)	Learning outcomes (LO's)	PSO	BL
CO1	Acquire knowledge of Object oriented programming along with CERT JAVA coding standard	16	32	1,2,3,5,9	1	1,2,4	1,2
CO2	Achieve reusability using Inheritance and Packages	10	26	1,2,3,5,9	1	1,2,4	2,3
CO3	Achieve high level reusability using Generics	04	08	1,2,3,5,9	2	1,2,4	2,3
CO4	Appreciate the use of exception handling and achieve concurrency through multithreading	10	20	1,2,3,5,9	1	1,2,4	3,4
CO5	Understand event handling and Design simple GUI based applications using Javafx	08	14	1,2,3,5,9	2	1,2,4	4,5
Total hours/ Marks		**48**	**100**				

Course Articulation Matrix

CO	PO1	PO2	PO3	PO5	PO9	PSO1	PSO2	PSO3
CSE2154.1	3	1	1	1	1	3	2	1
CSE2154.2	2	2	2	2	2	3	1	1
CSE2154.3	2	2	2	2	1	2	1	1
CSE2154.4	2	1	1	1	1	2	2	2
CSE2154.5	3	2	2	2	2	3	2	2
Average Program Articulation Level	2.4	1.6	1.6	1.6	1.4	2.6	1.6	1.4

IET – Course Learning Outcomes (CLO's) mapping with AHEP LO's

Course Learning Outcome	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18
CSE2154.1	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
CSE2154.2	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
CSE2154.3	☐	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
CSE2154.4	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
CSE2154.5	☐	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Abbreviations

1. **CO – Course outcome**
2. **PO – Program outcome**
3. **PSO – Program Specific outcome**
4. **LO – Learning outcome**
5. **CLO – Course Learning outcome**
6. **BL – Blooms Taxonomy**
7. **AHEP – The Accreditation of Higher Education Programmes**