

SWARNANDHRA COLLEGE OF ENGINEERING AND TECHNOLOGY



AUTONOMOUS

NARSAPUR, WEST GODAVARI DISTRICT, AP - 534280

DEPARTMENT OF ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

TEACHING PLAN

Course Code	Course Title	Semester	Branches	Contact Periods/Week	Academic Year	Date of commencement of Semester
23AM3T02	Object Oriented Programming Using Java	III	AI&ML - A,B	5	2024 -2025	30-8-2024

COURSE OUTCOMES:-

1	Identify and utilize Java language components effectively in applications (K2)
2	Implement object-oriented programming principles using Java. (K3)
3	Extend Java classes with inheritance and handle exceptions in applications (K3)
4	Design multi-threaded applications in Java. (K3)
5	Use Java APIs for program development and database connectivity. (K3)

Unit	Out Comes/ Bloom's Level	Topics No.	Topics/Activity	Text Book/ Reference	Contact Hour	Delivery Method
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UNIT-I: Introduction

I	CO1: Identify and utilize Java language components effectively in applications	1.1.1	Object Oriented Programming: Basic concepts: Object, Class, Abstraction, Encapsulation, Inheritance, Polymorphism, Dynamic binding and Message passing.	T1,R1	2	Chalk,talk
		1.1.2	Program Structure in Java: Introduction,	T1,R1	1	Chalk,talk
		1.1.3	Elements or Tokens in Java,	T1,R1	2	Chalk,talk
		1.1.4	Command Line Arguments	T1,R1	1	Chalk,talk
		1.1.5	User Input to Programs.	T1,R1	1	Chalk,talk
		1.2.1	Data Types in Java, Declaration of Variables,	T1,R1	1	Chalk,talk
		1.2.2	Type Casting, Scope of Variable,	T1,R1	1	Chalk,talk
		1.2.3	Static Variables and Methods,	T1,R1	1	Chalk,talk
		1.3.1	Introduction to Operators, Types of operators, Precedence and Associativity of Operators	T1,R1	1	Chalk, Talk
		1.4.1	Control Statements: Introduction if Expression, Nested if Expressions, if-else Expressions, Switch Statement,	T1,R1	1	Chalk, Talk



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		1.4.2	Iteration Statements, while Expression, do-while Loop, for Loop, Nested for Loop, For-Each Loop,	T1,R1	1	Chalk, Talk
		1.4.3	Break Statement, Continue Statement	T1,R1	1	Chalk, Talk
Total						14

UNIT-II: Classes and Objects:						
II	CO2: Implement object-oriented programming principles using Java.	2.1.1	Classes and Objects: Introduction, Class Declaration and Modifiers	T2,R1	2	Chalk,Talk
		2.1.2	Class Members, Declaration of Class Objects	T2,R1	1	Chalk,Talk
		2.1.3	Assigning One Object to Another	T2,R1	1	Chalk,talk
		2.1.4	Access Control for Class Members	T2,R1	1	Chalk,talk
		2.1.5	Constructor Methods for Class, Overloaded Constructor Methods	T2,R1	1	Chalk,Talk
		2.1.6	Nested Classes	T2,R1	1	Chalk,Talk
		2.1.7	Final Class and Methods	T2,R1	1	Chalk,Talk
		2.1.8	Passing Arguments by Value and by Reference	T2,R1	1	Chalk, Talk
		2.1.9	Keyword this.	T2,R1	2	Chalk,Talk
		2.2.1	Methods: Introduction, Defining Methods	T2,R1	1	Chalk,talk
		2.2.2	Overloaded Methods, Overloaded Constructor Methods	T2,R1	2	Chalk,talk
		2.2.3	Class Objects as Parameters in Methods, Access Control	T2,R1	1	Chalk,talk
		2.2.4	Recursive Methods, Nesting of Methods,	T2,R1	1	Chalk,talk
		2.2.5	Overriding Methods,	T2,R1	1	Chalk,talk
		2.2.6	Attributes Final and Static	T2,R1	1	Chalk,talk
Total						18

UNIT-III: Arrays						
CO3: Extend Java classes with inheritance and handle exceptions in applications	3.1.1	Arrays: Introduction, Declaration and Initialization of Arrays,	T2,R1	1	Chalk,Talk	
	3.1.2	Storage of Array in Computer Memory, Accessing Elements of Arrays,	T2,R1	1	Chalk,Talk	
	3.1.3	Operations on Array Elements, Assigning Array to Another Array,	T1,R2	1	Chalk,Talk	
	3.1.4	Dynamic Change of Array Size, Sorting of Arrays.	T1,R2	1	Chalk,Talk	

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III		3.1.5	Multidimensional arrays	T1,R2	1	Chalk,Talk
		3.2.1	Inheritance: Introduction, Process of Inheritance,	T1,R2	1	Chalk,Talk
		3.2.2	Types of Inheritances	T1,R2	1	Chalk,Talk
		3.2.3	Universal Super Class-Object Class, Inhibiting Inheritance of Class Using Final, Access Control and Inheritance,	T1,R2	1	Chalk,Talk
		3.2.4	Multilevel Inheritance	T1,R2	1	Chalk,Talk
		3.2.5	Application of Keyword Super	T1,R2	1	Chalk,Talk
		3.2.6	Constructor Method and Inheritance, Method Overriding, Dynamic Method Dispatch	T1,R2	1	Chalk,Talk
		3.2.7	Abstract Classes, Interfaces and Inheritance	T1,R2	1	Chalk,Talk
		3.3.1	Interfaces: Introduction, Declaration of Interface, Implementation of Interface, Multiple Interfaces,	T1,R2	1	Chalk,Talk
		3.3.2	Nested Interfaces, Inheritance of Interfaces, Default Methods in Interfaces	T1,R2	1	Chalk,Talk
		3.3.3	Static Methods in Interface, Functional Interfaces, Annotations	T1,R2	1	Chalk,Talk
Total					15	
UNIT-IV: Packages and Java Library						
IV	CO4: Design Multi-threaded applications in Java.	4.1.1	Packages and Java Library: Introduction, Defining Package, Importing Packages and Classes into Programs	T1,R2	1	Chalk,Talk
		4.1.2	Path and Class Path, Access Control, Packages in Java SE,	T1,R2	1	Chalk,Talk
		4.1.3	Java.lang Package and its Classes, Class Object,	T1,R2	1	Chalk,Talk
		4.1.4	Enumeration, class Math, Wrapper Classes, Auto-boxing and Auto-unboxing	T1,R2	2	Chalk,Talk
		4.1.5	Java util Classes and Interfaces	T1,R2	1	Chalk,Talk
		4.1.6	Formatter Class, Random Class, Time Package, Class Instant (java.time.Instant), Formatting for Date/Time in Java, Temporal Adjusters Class.	T1,R2	1	Chalk,Talk
		4.2.1	Exception Handling: Introduction, Hierarchy of Standard Exception Classes,	T1,R2	1	Chalk,Talk
		4.2.2	Keywords throws and throw, try, catch, and finally Blocks	T1,R2	2	Chalk,Talk

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	4.2.3	Multiple Catch Clauses, Class Throwable,	T1,R2	1	Chalk,Talk
	4.2.4	Unchecked Exceptions, Checked Exceptions	T1,R2	1	Chalk,Talk
Total				12	

UNIT-V:

V	CO5: Use Java APIs for program development and database connectivity.	5.1.1	String Handling in Java: Introduction, Interface Char Sequence,	T2,R1	1	Chalk,Talk	
		5.1.2	Class String, Methods for Extracting Characters from Strings,	T2,R1	1	Chalk,Talk	
		5.1.3	Comparison, Modifying, Searching	T2,R1	1	Chalk,Talk	
		5.1.4	Class String Buffer.	T2,R1	1	Chalk,Talk	
		5.2.1	Multithreaded Programming: Introduction, Need for Multiple Threads Multithreaded Programming for Multi-core Processor,	T2,R1	2	Chalk,Talk	
		5.2.2	Thread Class, Main Thread-Creation of New Threads, Thread States, Thread Priority-Synchronization,	T2,R1	1	Chalk,Talk	
		5.2.3	Deadlock and Race Situations	T2,R1	1	Chalk,Talk	
		5.2.4	Inter-thread Communication - Suspending, Resuming, and Stopping of Threads	T2,R1	1	Chalk,Talk	
		5.3.1	Java Database Connectivity: Introduction, JDBC Architecture,	T2,R1	2	Chalk,Talk	
		5.3.2	Installing MySQL and MySQL Connector/J,	T2,R1	1	Chalk,Talk	
		5.3.3	JDBC Environment Setup, Establishing JDBC Database Connections,	T2,R1	1	Chalk,Talk	
		5.3.4	ResultSet Interface	T2,R1	1	Chalk,Talk	
		Total				14	
		CUMULATIVE PROPOSED PERIODS				73	

TextBooks:

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Anitha Seth, B.L. Juneja, JAVA one step ahead, First Edition, Oxford University Press, 2017.
2	Debasis Samanta, Monalisa Sarma, Joy with Java: Fundamentals of Object Oriented Programming, new edition Cambridge University Press, 2023.
3	Paul Deitel, Harvey Deitel, Java 9 for Programmers, , 4th Edition, Pearson Education, 2018

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Reference Books:

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Herbert Schildt, Java: The complete Reference 12th edition, McGraw Hill, 2022.
2	Y Daniel Liang, Introduction to Java programming, 7 th Edition, Pearson Education, 2009

Web Details:

1	https://nptel.ac.in/courses/106/105/106105191/
2	https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_012880464547618816347_shared/overview
3	https://www.javatpoint.com/java-tutorial

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