

## PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY

**(Autonomous)**

**KANURU, VIJAYAWADA-520007**

II B. Tech – I Sem CSE (AI&amp;ML)

# Object Oriented Programming through JAVA

<b>Course Code</b>	20AM3302	<b>Year</b>	II	<b>Semester</b>	I
<b>Course Category</b>	PCC	<b>Branch</b>	CSE (AI&ML)	<b>Course Type</b>	Theory
<b>Credits</b>	3	<b>L-T-P</b>	3-0-0	<b>Prerequisites</b>	Programming for Problem Solving using C
<b>Continuous Internal Evaluation:</b>	30	<b>Semester End Exam:</b>	70	<b>Total Marks:</b>	100

## Course Outcomes

Upon successful completion of the course, the student will be able to

<b>CO1</b>	Understand the fundamental concepts of Object-Oriented Programming & constructs of Java programming language.	<b>L2</b>
<b>CO2</b>	Apply object-oriented programming principles for solving problems.	<b>L3</b>
<b>CO3</b>	Apply the collection framework to implement various data structures	<b>L3</b>
<b>CO4</b>	Analyze proper exception handling mechanism to avoid abnormal termination of Program.	<b>L4</b>

**Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:Substantial, 2: Moderate, 1:Slight)**

[illegible]

Syllabus		Mapped CO
Unit No.	Contents	
I	<b>Fundamentals of OOP and Java</b> <b>Java Basics</b> -Need of OOP, Procedural Languages vs. OOP, Principles of OOP Languages, Java Virtual Machine, Java Features. <b>Java Programming constructs</b> - Variables, Data types, Identifiers, Keywords, Operators, Control Statements, Arrays. <b>String Handling</b> - String Class, String Buffer Class and String Tokenizer Class.	CO1, CO2
II	<b>Class Fundamentals and Inheritance</b> <b>A Closer Look at Methods and Classes</b> - Class Fundamentals, Declaring Objects, Methods, Constructors, Static Keyword, this keyword, Overloading methods, and constructors. <b>Inheritance</b> - Basics, Types of Inheritance, Member access rules, Implementation of Inheritance. <b>Polymorphism</b> - Overloading, Method overriding, using super keyword, Dynamic Method Dispatch, Abstract Classes, Final Keyword.	CO1, CO2
III	<b>Interfaces and Packages</b> <b>Interfaces</b> - Differences between Classes and Interfaces, Defining an Interface, Implementing Interfaces, variables in interfaces and extending interfaces. <b>Packages</b> - Defining, Creating and Accessing a Package, Access Controls, Object class, Wrapper Classes.	CO1, CO2
IV	<b>Exception Handling and Multithreading</b> <b>Exception Handling</b> - Exception Handling Fundamentals, Uncaught exceptions, using try and catch, multiple catch clauses, nested try statements, throw, throws, finally, User-defined exceptions. <b>Multithreading</b> - Introduction to Multitasking, Thread Life Cycle, Creating Threads, Synchronizing threads.	CO1, CO2, CO4
V	<b>The Collection Framework</b> <b>Collection Framework</b> - Need for Collection Framework, Hierarchy of Collection Framework, Array List, Importance of methods like Hash code()and equals(). <b>Collection objects</b> - sets, lists, stacks, queues, maps.	CO1, CO2, CO3

Learning Resources
<b>Text Books</b>
1. Java - The Complete Reference, Herbert Schildt, Ninth Edition, 2014, McGraw -Hill.
<b>References</b>
1. Programming in Java, Sachin Malhotra, Saurabh Choudhary, Second Edition, 2018, Oxford.
2. Head First Java, Bert Bates, Kathy Sierra, Second Edition, 2005, O'Reilly.
3. Core Java an Integrated Approach, Dr. R. Nageswara Rao, 2017, Dreamtech.
4. Object Oriented Programming through Java, P. Radha Krishna, 2007, Universities Press.
<b>e- Resources and other Digital Material</b>
1. <a href="https://nptel.ac.in/courses/106/105/106105191/">https://nptel.ac.in/courses/106/105/106105191/</a>
2. <a href="https://www.udemy.com/course/java-tutorial/">https://www.udemy.com/course/java-tutorial/</a>
3. <a href="https://www.decodejava.com/">https://www.decodejava.com/</a>
4. <a href="https://www.codecademy.com/learn/learn-java">https://www.codecademy.com/learn/learn-java</a>
5. <a href="https://www.w3schools.com/java/">https://www.w3schools.com/java/</a>

