PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY

(Autonomous)

KANURU, VIJAYAWADA-520007

II B. Tech – I Sem CSE (DATA SCIENCE)

Object Oriented Programming through JAVA

Course Code	20DS3302	Year	II	Semester	I
Course Category	PCC	Branch	CSE (Data Science)	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	Programming for Problem Solving using C
Continuous Internal Evaluation:	30	Semester End Exam:	70	Total Marks:	100

Course Outcomes		
Upon successful completion of the course, the student will be able to		
CO1	Understand the fundamental concepts of Object-Oriented Programming & constructs of Java programming language.	L2
CO2	Apply object-oriented programming principles for solving problems.	L3
CO3	Apply the collection framework to implement various data structures	L4
CO4	Analyze proper exception handling mechanism to avoid abnormal termination of Program.	L4

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:Substantial, 2: Moderate, 1:Slight)													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3													
CO2	3													
CO3	1											1		
CO4	1											1		

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

Learning Resources
Text Books
1. Java - The Complete Reference, Herbert Schildt, Ninth Edition, 2014, McGraw -Hill.
References
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.
e- Resources and other Digital Material
1. https://nptel.ac.in/courses/106/105/106105191/
2. https://www.udemy.com/course/java-tutorial/
3. https://www.decodejava.com/
4. https://www.codecademy.com/learn/learn-java
5. https://www.w3schools.com/java/