Object Oriented Programming

Course Code	19CS3302	**Year**	II	**Semester**	I
Course Category	Program Core	**Branch**	CSE	**Course Type**	Theory
Credits	2	**L-T-P**	2-0-0	**Prerequisites**	Problem solving and Programming (19ES1102)
Continuous Internal Evaluation :	30	**Semester End Evaluation:**	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 type hierarchy in collection framework of Java	**L3**
CO4	Analyze the suitable group of generic classes and implementations to solve problems on online platforms	**L4**
CO5	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	3													
CO4		3			3				3	3				
CO5		3												

	Course Content	
UNIT-1	**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, StringBuffer Class and StringTokenizer Class.	**CO1, CO2**
UNIT-2	**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**
UNIT-3	**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,CO5**
UNIT-4	**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**
UNIT-5	**The Collection Framework** **Collection Framework-** Need for Collection Framework, Hierarchy of Collection Framework, Array List, Importance of methods like Hashcode() 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.	
Reference Books	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 & 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/	