Course Title : Object Oriented Programming with Java (FC-I)				
Course Code : P18CS36	Semester : 3	L:T:P:H : 4:0:0:4		Credits: 3
Contact Period: Lecture: 52 Hrs, Exam: 3 Hrs		Weightage: CIE:50; SEE:50		

Course Content
Unit-1

Object Oriented Concepts : Fundamentals of Object Oriented programming - Object oriented paradigm, basics concepts of object oriented programming, benefits of object oriented programming, applications of object oriented programming.

Program Structure in Java: Brief introduction to data types, scope of variable identifier, literal constants, symbolic constants, user input to programs, formatted output, operators and control statements in java, Writing simple Java programs.

Self Study Component : Type casting in Java

10 Hours

Unit-2

Classes and Objects- Introduction, Class Declaration and Modifiers, Class Modifiers, Declaration of Class Objects, Assigning One Object to Another ,Access Control for Class Members, Accessing Private Members of Class, Constructor Methods for Class, Nested Classes, Final Class and Methods , Passing Arguments by Value and by Reference, Keyword this.

Methods- Introduction, Defining Methods, Overloaded Methods, Overloaded Constructor Methods, Class Objects as Parameters in Methods, Access Control, Nesting of Methods, Overriding Methods, Attributes Final and Static.

Self Study Component : Overloaded Constructor Methods

10 Hours

Unit-3

Inheritance Introduction, Process of Inheritance, Types of Inheritances, Universal Super Class, Inhibiting inheritance of Class Using Final, Access Control and Inheritance, Multilevel Inheritance, Application of Keyword Super, Constructor Method and Inheritance, Method Overriding, Abstract Classes, Interfaces and Inheritance.

Interfaces- Introduction- Similarities between Interface and Class, Declaration of Interface, Implementation of interface, Multiple Interfaces.

Self Study Component : Dynamic Method Dispatch

10 Hours

Unit-4

Packages Introduction, Defining, Importing Packages and Classes into Programs, Path and Class Path, Access Control, Packages in Java SE, Java.lang Package and its Classes,class object,Enumeration, class math, wrapper classes, autoboxing and autounboxing.

Exception Handling- Introduction, Hierarchy of Standard Exception Classes, Keywords throws and throw, try, catch, and finally Blocks, Multiple Catch Clauses, Class Throwable, Unchecked Exceptions, Checked Exceptions, try with resources, catching subclass exceptions, custom exceptions, nested try and catch blocks, throws clause.

Self Study Component : Rethrowing exceptions

10 Hours

Unit-5

Generics : Introduction, Generics and Primitive Types, Declaration of Generic Class and Constructor,Use of Object Class verses Generic Class, Generic Class with Multiple Type Parameters, Generic Method, Generic Interface, Overridding Methods in Generics Class,Upper Bound on Types, Multiple Bounds on Types, Wildcard, Bounded Wildcard, Generic Constructor in Non-generic Class, Generic Super Class and Generic Subclass, Non-generic Super Class with Generic Subclass, Generic Type Parameters and Inheritance, Generics and Reflection, Restrictions in Java Generics.

Input out streams and File operations: Introduction, Class File, FileInputStream ByteArrayInputStream, OutputStream and its Subclasses FileOutputStream, DataInputStream and DataOutput Stream, Class Writer.

Self Study Component : Generic Method Overloading

10 Hours

Text Books:
1. E Balagurusamy, Programming With Java : A Primer 5th Edition Tata McGraw Hill.
2. Java: One Step Ahead by Anita Seth , B.L. Juneja ,OXFORD University press - First Edition 2017.

Reference Book:
1. Herbert Schildt, Java The Complete Reference, 9th Edition, Tata McGraw Hill.

Course outcomes:
CO1: Understand object-oriented concepts and Java features.
CO2: Apply Java features to develop programs.
CO3: Demonstrate the usage of Inheritance and Interfaces.
CO4: Develop programs using Packages Exception Handling
CO5: Develop programs using generic concepts and files in java

CO-PO Mapping

Semester: 3	Course code : P18CS36	Title : Object Oriented Programming with Java (FC-I)													
CO	**Statement**	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2
CO-1	Explain the object-oriented concepts and apply Java features to develop simple Java programs.	2	3	-	-	-	-	-	-	-	-	-	-	3	-
CO-2	Understand the concepts of classes and objects.	2	2	3	-	-	-	-	-	-	-	-	-	3	
CO-3	Demonstrate the usage of Inheritance and Interfaces	2	2	2		2	2	2						3	
CO-4	Develop programs using Packages, Exception Handling	2	2	2		2	2	2						2	
CO-5	Understand and develop programs using generic concepts and files in java	2	2	2		2	2	2						2	
		2	**2.2**	**2.25**		**2**	**2**	**2**						**2.6**	