OBJECT ORIENTED PROGRAMMING THROUGH JAVA

II B. TECH- I SEMESTER

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIE	SEE	Total
A6IT02	PCC	3	-	-	3	40	60	100

COURSE OBJECTIVES

The course should enable the students to:

1. Understand the basic object oriented programming concepts and apply them in problem solving.
2. Illustrate inheritance and polymorphism concepts for reusing the program.
3. Demonstrate on the exception handling mechanism
4. Develop multi-threading and data-centric applications using JDBC.
5. Understand the basics of java collection framework

COURSE OUTCOMES

At the end of the course, student will be able to

1. Understand the basic programming concepts and apply them in problem solving
2. Implement object-oriented principles, such as encapsulation, inheritance, polymorphism, and abstraction.
3. Demonstrate the user defined exceptions by exception handling keywords (try, catch, throw, throws andfinally).
4. Develop java application to interact with database by using relevant software component (JDBC Driver).
5. Build real world applications using Collection framework

UNIT - I	JAVA BASICS	CLASSES: 12

JAVA BASICS: Review of Object oriented concepts, History of Java, Java buzzwords, JVM architecture, Data types, Variables, Scope and life time of variables, arrays, operators, control statements, type conversion and casting, simple java program, constructors, methods, Static block, Static Data, Static Method ,String and String Buffer Classes, Using Java API Document.

UNIT - II	INHERITANCE, POLYMORPHISM, PACKAGES AND INTERFACES	CLASSES: 11

INHERITANCE AND POLYMORPHISM: Basic concepts, Types of inheritance, Member access rules, Usage of this and Super key word, Method Overloading, Method overriding, Abstract classes, Encapsulation, Need for encapsulation in java, Data hiding vs Encapsulation, getter and setter methods, Dynamic method dispatch, Usage of final keyword.

PACKAGES AND INTERFACES: Defining package, Access protection, importing packages, Defining and Implementing interfaces, and Extending interfaces

UNIT - III	EXCEPTION HANDLING AND FILES	CLASSES: 10

IEXCEPTION HANDLING: Exception types, Usage of Try, Catch, Throw, Throws and Finally keywords, Built-in Exceptions, Creating own Exception classes.

I / O STREAMS AND FILES: Concepts of streams, Stream classes- Byte and Character stream, Reading console Input and Writing Console output, IO/Serialization, File Handling,

UNIT – IV	MULTITHREADING AND JDBC	CLASSES: 10

MULTI THREADING: Concepts of Thread, Thread life cycle, creating threads using Thread class and Runnable interface, Synchronization, Thread priorities, Inter Thread communication, Concurrency, Executors framework

JDBC-Connecting to Database - JDBC Type 1 to 4 drives, connecting to a database, querying a Database and processing the results, updating data with JDBC

UNIT - V	COLLECTION FRAMEWORK	CLASSES: 10

COLLECTION FRAMEWORK: Introduction to Java Collections, Overview of Java Collection frame work, Generics, Commonly used Collection classes- Array List, Vector, Hash table, Stack, Enumeration, Iterator, String Tokenizer, Random, Scanner, calendar and Properties, Lambdas & Functional Interfaces

TEXT BOOKS

1. Herbert Schildt and Dale Skrien, ‖Java Fundamentals – A comprehensive Introduction‖, McGraw Hill, 1st Edition, 2013.
2. Herbert Schildt, ―Java the complete reference‖, McGraw Hill, Osborne, 7th Edition, 2011.
3. T.Budd, ―Understanding Object- Oriented Programming with Java‖, Pearson Education, Updated Edition (New Java 2 Coverage), 1999.

REFERENCE BOOKS

1. P.J.Dietel and H.M.Dietel , ―Java How to program‖, Prentice Hall, 6th Edition, 2005.
2. P.Radha Krishna , ―Object Oriented programming through Java‖, CRC Press, 1st Edition, 2007.
3. S.Malhotra and S. Choudhary, ―Programming in Java‖, Oxford University Press, 2nd Edition, 2014.