PROGRAMMING IN JAVA
[As per Choice Based Credit System (CBCS) scheme]
(Effective from the academic year 2016 -2017)
SEMESTER – V

Subject Code	15CS561	IA Marks	20
Number of Lecture Hours/Week	3	Exam Marks	80
Total Number of Lecture Hours	40	Exam Hours	03

CREDITS – 03

Course objectives: This course will enable students to

- Learn fundamental features of object oriented language and JAVA
- Set up Java JDK environment to create, debug and run simple Java programs.
- Learn object oriented concepts using programming examples.
- Study the concepts of importing of packages and exception handling mechanism.
- Discuss the String Handling examples with Object Oriented concepts.

Module – 1	Teaching Hours
An Overview of Java: Object-Oriented Programming, A First Simple Program, A Second Short Program, Two Control Statements, Using Blocks of Code, Lexical Issues, The Java Class Libraries, Data Types, Variables, and Arrays: Java Is a Strongly Typed Language, The Primitive Types, Integers, Floating-Point Types, Characters, Booleans, A Closer Look at Literals, Variables, Type Conversion and Casting, Automatic Type Promotion in Expressions, Arrays, A Few Words About Strings **Text book 1: Ch 2, Ch 3**	**8 Hours**
Module – 2	
Operators: Arithmetic Operators, The Bitwise Operators, Relational Operators, Boolean Logical Operators, The Assignment Operator, The ? Operator, Operator Precedence, Using Parentheses, Control Statements: Java's Selection Statements, Iteration Statements, Jump Statements. **Text book 1: Ch 4, Ch 5**	**8 Hours**
Module – 3	
Introducing Classes: Class Fundamentals, Declaring Objects, Assigning Object Reference Variables, Introducing Methods, Constructors, The this Keyword, Garbage Collection, The finalize( ) Method, A Stack Class, A Closer Look at Methods and Classes: Overloading Methods, Using Objects as Parameters, A Closer Look at Argument Passing, Returning Objects, Recursion, Introducing Access Control, Understanding static, Introducing final, Arrays Revisited, Inheritance: Inheritance, Using super, Creating a Multilevel Hierarchy, When Constructors Are Called, Method Overriding, Dynamic Method Dispatch, Using Abstract Classes, Using final with Inheritance, The Object Class. **Text book 1: Ch 6, Ch 7.1-7.9, Ch 8.**	**8 Hours**
Module – 4	
Packages and Interfaces: Packages, Access Protection, Importing Packages, Interfaces, Exception Handling: Exception-Handling Fundamentals, Exception Types, Uncaught Exceptions, Using try and catch, Multiple catch Clauses, Nested try Statements, throw, throws, finally, Java's Built-in Exceptions, Creating Your Own Exception Subclasses, Chained Exceptions, Using Exceptions. **Text book 1: Ch 9, Ch 10**	**8 Hours**

Module – 5	
Enumerations, Type Wrappers, I/O, Applets, and Other Topics: I/O Basics, Reading Console Input, Writing Console Output, The PrintWriter Class, Reading and Writing Files, Applet Fundamentals, The transient and volatile Modifiers, Using instanceof, strictfp, Native Methods, Using assert, Static Import, Invoking Overloaded Constructors Through this( ), String Handling: The String Constructors, String Length, Special String Operations, Character Extraction, String Comparison, Searching Strings, Modifying a String, Data Conversion Using valueOf( ), Changing the Case of Characters Within a String , Additional String Methods, StringBuffer, StringBuilder. **Text book 1: Ch 12.1,12.2, Ch 13, Ch 15**	**8 Hours**

Course outcomes: The students should be able to:
- Explain the object-oriented concepts and JAVA.   - Develop computer programs to solve real world problems in Java.   - Develop simple GUI interfaces for a computer program to interact with users
Question paper pattern: The question paper will have TEN questions. There will be TWO questions from each module. Each question will have questions covering all the topics under a module. The students will have to answer FIVE full questions, selecting ONE full question from each module.
Text Books:
1. Herbert Schildt, Java The Complete Reference, 7th Edition, Tata McGraw Hill, 2007. (Chapters 2, 3, 4, 5, 6,7, 8, 9,10, 12,13,15)
Reference Books:
1. Mahesh Bhave and Sunil Patekar, "Programming with Java", First Edition, Pearson Education,2008, ISBN:9788131720806. 2. Rajkumar Buyya,S Thamarasi selvi, xingchen chu, Object oriented Programming with java, Tata McGraw Hill education private limited. 3. E Balagurusamy, Programming with Java A primer, Tata McGraw Hill companies. 4. Anita Seth and B L Juneja, JAVA One step Ahead, Oxford University Press, 2017.