

## B.Tech III Year I Semester

## JNTUA COLLEGE OF ENGINEERING (AUTONOMOUS) PULIVENDULA

19ACS55a- OOPS CONCEPTS THROUGH JAVAOpen Elective-1

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**Course Objectives:**

- Study the syntax, semantics and features of Java Programming Language
- Study the Object Oriented Programming Concepts of Java Programming language
- Learn the method of creating Multi-threaded programs and handle exceptions
- Learn Java features to create GUI applications & perform event handling

**UNIT – I: INTRODUCTION**

8hrs

**Introduction to Java:** The key attributes of object oriented programming, simple program, The Java keywords, Identifiers, Data types and operators, Program control statements, Arrays, Strings, String Handling

**Learning Outcomes:**

At the end of this unit, the student will be able to

- Understand the basics of computer graphics, different graphics systems and applications of computer graphics. L2
- Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis. L2

**UNIT – II: CLASSES**

8hrs

**Classes:** Classes, Objects, Methods, Parameters, Constructors, Garbage Collection, Access modifiers, Pass Objects and arguments, Method and Constructor Overloading, Understanding static, Nested and inner classes.

**Learning Outcomes:**

At the end of this unit, the student will be able to

- Use of geometric transformations on graphics objects and their application in composite form. L3
- Extract scene with different clipping methods and its transformation to graphics display device. L3

**UNIT – III: INHERITANCE**

8hrs

**Inheritance** – Basics, Member Access, Usage of Super, Multi level hierarchy, Method overriding, Abstract class, Final keyword.

**Learning Outcomes:**

At the end of this unit, the student will be able to

- Explore projections and visible surface detection techniques for display of 3D scene on 2D screen. L4
- Render projected objects to naturalize the scene in 2D view and use of illumination models. L4

**UNIT – IV: INTERFACES**

7 Hrs

**Interfaces** – Creating, Implementing, Using, Extending, and Nesting of interfaces.

**Packages** – Defining, Finding, Member Access, Importing.

**Learning Outcomes:**

At the end of this unit, the student will be able to

- Understand the basics of Multimedia basics, different graphics systems and applications of computer graphics. L3
- Discuss various multimedia data structures. L3

**UNIT – V: EXCEPTION HANDLING**

**Exception handling:** Hierarchy, Fundamentals, Multiple catch clauses, subclass exceptions, Nesting try blocks, Throwing an exception, Using Finally and Throws, Built-in exceptions, User-defined exceptions.

**Learning Outcomes:**

At the end of this unit, the student will be able to

- Understand the basics of Multimedia Authoring systems. L5
- Understand the how videos are placed. L5

**Text Books:**

1. “Java Fundamentals - A Comprehensive Introduction”, Herbert Schildt and Dale Skrien, Special Indian Edition, McGrawHill, 2013.
2. “Java The Complete Reference” Herbert Schildt, 8<sup>th</sup> Edition, 2011, Oracle press, TataMcGraw-Hill.
3. “Java – How to Program”, Paul Deitel, Harvey Deitel, PHI.

**Reference Books:**

1. “Programming with Java” T.V.Suresh Kumar, B.Eswara Reddy, P.Raghavan Pearson Edition.
2. “Core Java”, Nageswar Rao, Wiley Publishers.
3. “Thinking in Java”, Bruce Eckel, Pearson Education.
4. “A Programmers Guide to Java SCJP”, Third Edition, Mughal, Rasmussen, Pearson.
5. “Head First Java”, Kathy Sierra, Bert Bates, O’Reilly
6. “SCJP – Sun Certified Programmer for Java Study guide” – Kathy Sierra, Bert Bates, McGrawHill.
7. “Java in Nutshell”, David Flanagan, O’Reilly
8. “Core Java : Volume I – Fundamentals, Cay S. Horstmann, Gary Cornell, The Sun Micro Systems Press.

**Course Outcomes:**

At the end of this Course the student will be able to

- Gain knowledge of client-side scripting, validation of forms and AJAX programming. L3
- Understand server-side scripting with PHP language. L4
- Understand what XML is and how to parse and use XML Data with Java. L5
- To introduce Server-side programming with Java Servlets and JSP.