

## **JAVA COURSE CONTENTS**

### **6<sup>th</sup> Semester Electronics and Telecommunication Engineering**

#### Introduction to HTML Concepts

- Form Elements, DHTML
- Nested Tables

#### Getting Started

- Describe the key features of Java Technology.
- Write, complete and run a simple Java Technology application.
- Describe the functions of Java Virtual Machine (JVM).
- NOTE: The terms “Java Virtual Machine” and “JVM” means a virtual machine for the Java Platform.
- Define Garbage Collection.
- List the three tasks performed by the Java Platform that handles code security.

#### Object Oriented Programming

- Define modeling concepts abstraction, Encapsulation and packages.
- Discuss why you can reuse Java Technology Application Code.
- Define class, member, attributer, method, constructor and package.

Use the access modifier private and public as Appropriate for the guidelines of encapsulation.

- Invoke a method on a particular object.
- Use the Java Technology Application Programming Interface (API) online documentation.

#### Identifiers, Keywords & Types

- Use comments in source program.
- Distinguish between valid and Invalid Identifiers.
- Recognize Java Technology keywords.
- List the eight private types.
- Define literal values for numeric and textual Types.
- Define the terms private variable and Reference Variable.
- Declare Variable of class type.
- Construct an object using new.



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- Describe default initialization.
- Describe significance of a reference Variable.
- State consequence of assigning variables of class types.

#### Expression & Flow Control

- Distinguish between Instance and Local Variables.
- Describe how to initialize instance variables.
- Identifiers and correct a possible reference before assignment compiler error.
- Recognize, Describe and Use Java Software Operators.
- Distinguish between legal and illegal Assignments of primitive types.
- Identify Boolean Expressions and their Requirements in control; constructs.
- Recognize assignment compatibility and require casts and fundamental types.
- Use if ,switch, for, while and do constructions And the labels forms of broke and continue as flow control structure in a program,

#### Arrays

- Declare and create arrays of primitive, class or array types.
- Explain why elements of and arrays are Initialized.
- Explain how to initialize the elements of an array.
- Determine the number of elements in an array. Create a multidimensional array.

#### Class Design

- Define inheritance, polymorphism, overloading and virtual method invocation.
- Use the access modifier protected And the default (package friendly)
- Describe the concept of constructor & method overloading.
- Describe the complete object constructor and Initialization operation.

#### Advance Class Features

- Create static variables, method, and Initializes.
- Create final classes, methods and Variables.
- Create and use enumerated types.
- Use the static import statement
- Create abstract classes and method.
- Create and use an interface.



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### Exceptions

- Define exceptions
- Use try, catch and finally statements.
- Describe exception categories.
- Identify common exception.
- Develop programs to handle your own Exception.
- Use assertions.
- Distinguish appropriate and inappropriate uses of assertions.
- Enable assertions at runtime.

### Text-Based Applications

- Write a program that uses command- Line argument and system properties.
- Write a program that reads from standard input.
- Describe the C-type formatted input and output.
- Write a program that can create, Read and write files.
- Describe the basic hierarchy of collections in Java 2 Software Development kit (Java 2 SDK).
- Write a program to iterate over a collection.
- Write a program that uses generic collections.

### Building Java GUIs

- Describe the Abstract Windowing Toolkit (AWT) package and its components.
- Define the terms containers, components and layout managers and Describe how they work to get to build a GUI.
- Use layout managers.
- Use the frame and panel containers appropriate.
- Describe how complex layout with nested containers work.

### GUI Event Handling

- Define event and event handling.
- Write code to handling events that occurs in a GUI.
- Describe the concepts of adapter Classes, including how and when to use them.
- Determine the user action that originated the event from the event.
- Identify the appropriate listener interface for a verity of event types.
- Create the appropriate event handle methods for the verity of event types.
- Understand the use of inner classes and anonymous classes in event handling.



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#### GUI- Based Applications

- Identify the key AWT components and the event that day trigger.
- Describe how to construct a menu and menu items in a Java GUI.
- Understand how to change a color and font of a component.

#### Threads

- Define a thread.
- Create Separated thread in a Java technology program, controlling the cone and data that are used by the thread.
- Control the execution of a thread and write platform independent codes with threads.
- Describe the difficulties that might arise when multiple thread share data.
- Use wait and notify the communicate between threads,
- Use synchronized to protect data from corruption.

#### Advance U/o Streams

- Describe the main features of the Java to Package.
- Construct node and processing Streams and use the appropriately.
- Distinguish readers and writers from Streams and select appropriately between them.

#### Networking

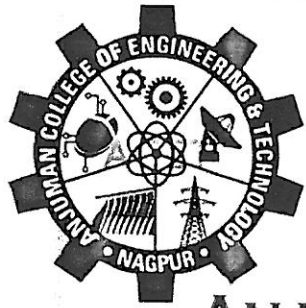
- Develop code to setup the Network Connection.
- Understand the Transmission Control Protocol/ Internet Protocol (TCP/IP).
- Use Server Socket and Socket Classes for implementation of TCP/IP clients and servers.



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