



Training Workshop Outline

Title	Web Programming - Java
Duration	40 hours
Tuition Fees	USD 1,500

Web Programming – Java

OVERVIEW

Think of your study module as reading the lecture instead of hearing it from a lecturer. Basically, in the open distance mode of education, the module replace your live lecture presentation. However, the module still require you to think for yourself to learn new concepts. In the same way that a lecturer in a conventional full-time mode of study might give you an in-class exercise, your study chapters will have exercises for you to do at appropriate points. These exercises and self-tests give you an opportunity to test your understanding level on the chapters that you have learned in the module. This will give you more confidence in preparing for the final examination. You are also strongly advised to discuss with your tutors, during the tutorial sessions, difficult points or chapters you may encounter in the module.

COURSE OBJECTIVES

Java is geared towards students who wish to acquire a solid background in the area of object oriented programming using Java. This aim of the course is to introduce the concept of Java programming using object-oriented approach. By the end of this course, you should be able to:

- Understand the fundamental aspects of Java.
- Understand the important concepts and terminologies in object-oriented programming.
- Write Java applications using object oriented approach.
- Write Java Applets.
- Write Java Applets that have event handling and exceptional handling.



- COURSE GUIDE

BENEFITS

After completion of this course, students will be able to:

- Understand how java website and application has been created and working.
- Student they have themselves to create own applications.
- Understand complete java Module Concepts & Procedures.

PREREQUISITES:

- Basic knowledge to access computer
- To know the website and its application
- The qualities of above mention which is not compulsory mandatory

COURSE DURATION

- 40 hours

CAREER TRACK & ROLES:

- Developer
- Programmer
- Software engineer
- Database administrator
- Mobile application

FOLLOW ON COURSES

- Windows application
- Web application
- Mobile application



COURSE OUTLINE

- Introduction to Java
- Data types, Classes & Arrays
- Operators & Flow Control
- Classes & Objects
- Abstract Classes & Interfaces
- Essential Java Classes
- Multithreading
- Blocks
- Collections & Generics
- Developing Graphical User Interfaces (GUI)
- Event Driven Programming
- Java Database Connectivity
- Translator
- Assembler
- Compiler
- Interpreter
- Difference between Compiler and Interpreter
- Programming Methodologies
- Block Structured Language
- Structured Language
- Procedural Oriented Programming
- Object Oriented Programming
- Object Based Programming
- Structured Language VS Block Structured Language
- Procedural Oriented Language VS Object Oriented Language

COURSE STRUCTURE

There are 12 topics in this module. A brief summary of the chapters are given below:

Topic 1: Introduction to Java

This topic gives overview about Java including its advantages. The types of Java program with their sample codes will be elaborated in this topic. In addition, the students will be exposed of how to compile and



execute a Java program.

Topic 2: Basic Constructs of Java

There are two basic blocks of programming: data and instructions and to work with data, you need to understand variables and data types; to work with instructions, you need to understand control structures and subroutines. This chapter will focus on how variables and data types and its related concepts that could be implemented in Java.

Topic 3: Control Structure and Method

As highlighted in Topic 2, there are two basic aspects of programming: data and instructions. To work with data, you need to understand variables and data types; to work with instructions, you need to understand control structures and methods. This topic will focus on control structures (such as if-else statement, switch-case statement, loops, etc) and methods.



Topic 4: Array, String and Input String

Like other programming languages, there are THREE important constructs in Java that enable us to write complete and comprehensive Java programs such as programs that will (just to name a few):

- Process the marks of 100 students and determine the highest and lowest marks
- Determine number of characters in a String
- Enable an user to key in data during program run-time.

These constructs are listed below and will be discussed in this topic:

- Array
- String
- Input Reading

Topic 5: Object Oriented Programming (Part I)

This topic will discuss the important terms and concepts related to objectoriented programming such as object, class, member methods, constructors, attributes and method overloading. These concepts are explained using various Java programs. This will help the students to master the concept easily in a short time.

Topic 6: Object Oriented Programming (Part II)

Manipulating objects effectively is another important area that should be emphasised by programmers. This will enable them to write effective and efficient code. How objects could be handled effectively in a program? To answer this question, you should well versed on the following concepts of object oriented programming (OOP): Access modifiers of public and private, static class members, using this keyword, sending objects to a method, writing classes that has object as its member and array of objects. All these concepts of OOP will be elaborated in this topic.

Topic 7: Object Oriented Programming (Part III)

This topic will discuss about inheritance. Inheritance is one of the most important concepts in object-oriented programming. It enables us to write a class that is similar to an existing class, but that still has some of its properties. Polymorphism, which is closely related to inheritance, will also be discussed in this topic.

Topic 8: Java Class Library

Java provides a lot of class library for many different tasks in programming such as mathematical operation, organisation, sequence, graphic, multithreading and network. This topic will discuss in detail the different types of Java class library and how we can use it in programming.



Topic 9: Applet.

The specialty of Java is on its ability to build a program that can operate in a networking environment. To achieve this, Java programming using applet is introduced in this topic. Applet is a Java program that can be executed in a web page through the Java-enabled web browser. An example of Java browser that is Java enabled is Netscape 2.0 and higher versions and Internet Explorer. With applet, we can write a program that is interactive whereby the user use mouse and keyboard to interact with the program.

Topic 10: GUI Components

This Topic will discuss on how to arrange the graphical user interface (GUI) components in Java Applet using swing library class. GUI components allow us to develop interactive programs.



Topic 11: Event Handling

The GUI component developed in Topic 6 does not perform any actions on the users input. When developing an applet, we definitely would want some meaningful actions. We would probably want the applets to perform some calculations when a user clicks the button, or the background color changes when a user scrolls the scroll bar, and etc. To make our programs responsive or interactive, we need to write the commands in the code. This is known as Event Handling. The programs developed must react accordingly to the event in order to do something. Event handling will be discussed in this topic.

Topic 12: Exceptional Handling

Final topic of this module will focus on exceptional handling. Here, you will learn on how to write Java programs that capable to handle errors using trycatch- finally, throw and throws clauses.