Course Description

This course introduces computer programming using the JAVA programming language with object-oriented programming principles. Emphasis is placed on event-driven programming  
methods, including creating and manipulating objects, classes, and using object-oriented tools such as the class debugger. And Learn Java’s Most Famous Framework “Spring” and Database MySQL

LEARNING OUTCOMES:

Learning Outcomes:

Upon completion of this course, the student will be able to:  
a. create, build, and debug Java applications.  
b. Apply algorithmic thinking to solve programming problems.  
c. Implement syntax rules in Java programs.  
d. Explain variables and data types used in program development.  
e. Apply arithmetic operations for displaying numeric output.  
f. Write and apply decision structures for determining different operations.  
g. Write and apply loop structures to perform repetitive tasks.  
h. Write user-defined methods.  
i. Identify and implement arrays, array lists, and multidimensional arrays.  
j. Write Java programs using object-oriented programming techniques including classes,  
objects, methods, instance variables, composition, inheritance, and polymorphism.  
k. Java Advanced Collection Framework.

l. You can learn Spring Framework

m. You can create your own Apis.

n. You can become use databases Queries Concepts

o. You can Become A good Developer with your Hard Work

The Quote For your Future which is

“Practice makes a man perfect”

OUTLINE OF INSTRUCTION:

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1. Introduction  
   A. History of Java  
   B. Features of Java  
   C. How Java works  
   D. Types of Java Programs  
   E. Edit, compile, and run Java applications
2. Variables, data types, and expressions  
   A. Identifier rules  
   B. Naming variables, constants (final) and references  
   C. Primitive data types  
   D. Arithmetic Operators  
   E. Assignment Operators  
   F. Relational and Logical Operators
3. Program control flow  
   A. IF ELSE  
   B. Switch Cases  
   C. Loops.
4. Methods  
   A. User-defined methods  
   B. Scope and duration  
   C. Local and Field variables  
   D. Pass-by-value, Pass-by-reference  
   E. Recursion

F. Overloading

v) Arrays

A. Declaration and allocation  
B. Passing arrays to methods  
C. Sorting, searching  
D. Multiple-subscripted

vi) **Object-Based Programming**

1. Classes and objects, instance variables, and instance methods.
2. Member access modifiers: public, private, protected, package.
3. Creating packages.
4. Constructors, overloaded constructors.
5. Final instance variables.
6. Composition.
7. Static class members.
8. this reference
9. **II. Object-Oriented Programming**  
   A. Inheritance  
   B. Super class, subclass  
   C. Polymorphism  
   D. Dynamic method binding.

E. Abstract class, Concrete class  
F. Inner class definition  
G. Type-wrapper class for primitive data types  
H. Interfaces

vii) **Collection Framework in Java** (Most Frequent used)

1. [Array List](https://beginnersbook.com/java-collections-tutorials/#1)
2. [HashSet](https://beginnersbook.com/java-collections-tutorials/#4)
3. [HashMap](https://beginnersbook.com/java-collections-tutorials/#7)
4. Queue
5. Stack
6. [Java Collections Interview Questions](https://beginnersbook.com/java-collections-tutorials/#13)

viii) Spring Framework

1. Tomcat Intro
2. Apache Intro
3. Overview of Spring Framework
4. IOC Containers
5. Http Methods
6. Crud Application.

ix) Database

MySQL Basic