

Teaching Plan

Dept. Of Computer Science

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Discipline : **Computer Science (Hons.)**
Semester : **Second**
Paper Code : **CC3T**
Subject : **Programming in Java**
Name of faculty : **Gourab Maiti**
Duration: 24th April,2023 to 9th July,2023

Unit	Topics	No. of Lectures	Duration in Hour
Unit 1	Introduction to Java Java Architecture and Features, Understanding the semantic and syntax differences between C++ and Java, Compiling and Executing a Java Program, Variables, Constants, Keywords Data Types, Operators (Arithmetic, Logical and Bitwise) and Expressions, Comments, Doing Basic Program Output, Decision Making Constructs (conditional statements and loops) and Nesting, Java Methods (Defining, Scope, Passing and Returning Arguments, Type Conversion and Type and Checking, Built-in Java Class Methods).	4	4
Unit 2	Arrays, Strings and I/O Creating & Using Arrays (One Dimension and Multi-dimensional), Referencing Arrays Dynamically, Java Strings: The Java String class, Creating & Using String Objects, Manipulating Strings, String Immutability & Equality, Passing Strings To & From Methods, String Buffer Classes. Simple I/O using System out and the Scanner class, Byte and Character streams, Reading/Writing from console and files.	6	6
Unit 3	Object-Oriented Programming Overview Principles of Object-Oriented Programming, Defining & Using Classes, Controlling Access to Class Members, Class Constructors, Method Overloading, Class Variables & Methods, Objects as parameters, final classes, Object class, Garbage Collection.	5	5
Unit 4	Inheritance, Interfaces, Packages, Enumerations, Autoboxing and Metadata Inheritance: (Single Level and Multilevel, Method Overriding, Dynamic Method Dispatch, Abstract Classes), Interfaces and Packages, Extending interfaces and packages, Package and Class Visibility, Using Standard Java Packages (util, lang, io, net), Wrapper Classes, Autoboxing/Unboxing, Enumerations and Metadata.	15	15

<p>Unit 5</p>	<p>Exception Handling, Threading, Networking and Database Connectivity Exception types, uncaught exceptions, throw, built-in exceptions, Creating your own exceptions; Multi-threading: The Thread class and Runnable interface, creating single and multiple threads, Thread prioritization, synchronization and communication, suspending/resuming threads. Using java.net package, Overview of TCP/IP and Datagram programming. Accessing and manipulating databases using JDBC.</p>	<p>15</p>	<p>15</p>
<p>Unit 6</p>	<p>Applets and Event Handling Java Applets: Introduction to Applets, Writing Java Applets, Working with Graphics, Incorporating Images & Sounds. Event Handling Mechanisms, Listener Interfaces, Adapter and Inner Classes. The design and Implementation of GUIs using the AWT controls, Swing components of Java Foundation Classes such as labels, buttons, textfields, layout managers, menus, events and listeners; Graphic objects for drawing figures such as lines, rectangles, ovals, using different fonts. Overview of servlets.</p>	<p>15</p>	<p>15</p>

Reference Books:

1. Head First Java, Kathy Sierra & Bert Bates, O'Reilly Media Inc.
2. Thinking in Java, Bruce Eckel, PHI Publications Pvt. Ltd.
3. The Java Programming Language, Ken Arnold, James Gosling & David Homes, Addison - Wesley Professional Publisher