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**ABES Engineering College, Ghaziabad**

**Department of Computer Science**

**Lecture Plan**

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| **Program** | **Sem** | **Course**  **Name** | **Course Code** | **Periods (University)** | | | **Evaluation Scheme** | | | | **Course**  **Total** | **Credit** |
| **L** | **T** | **P** | **Sessional Marks** | | | **UE** |
| **CT** | **TA** | **Total** |
| B.Tech. | 4th | Object Oriented Programming with Java | BCS403 | 4 | 0 | 2 | 20 | 10 | 30 | 70 | 100 | 3 |

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| **Periods (Actual)** | | | **Name of Faculty** | **Vertical/Domain Head** | **Date of**  **Commencement** | **Total lectures planned** | **Date of Conclusion** |
| **L** | **T** | **P** |
| 4 | 0 | 2 | Ms.Lopamudra Mohanty/ Ms. Anshul Khanna/ Mr. Abhishek Kesharwani | Mr. Abhishek Kesharwani | 1 April 2024 | 47 | 5th July 2024 |

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| **L-T Schedule** | **Name of the Topic as given in the Syllabus** | **KL** | **Assign/ Quiz/CT** |
| **Unit-1** | **Introduction** |  |  |
| L-1 | OOP’s Concepts, Why Java, History of Java, Feature of Java | **K2** | **Quiz-1 & Quiz-2/ Assignment 1** |
| L-2 | JVM, JRE, Java Environment, Java Source File Structure, and Compilation | K2 |
| L-3 | Tokens of Java: Operators, Variables, Data types etc. Comments | K2 |
| L-4 | Encapsulation, Defining Classes in Java, Control Flow | K2 |
| L-5 | Arrays & String | K2 |
| L-6 | Class, Object, Constructors, Methods | K2 |
| L-7 | Static Members, Final Members | K2 |
| L-8 | Inheritance Super Class, Sub Class, Access Specifies | K2, K3 |
| L-9 | Polymorphism, Overriding, Overloading | K2, K3 |
| L-10 | Abstraction, Interfaces, and Abstract Class | K2, K3 |
| L-11 | Defining Package, CLASSPATH Setting for Packages | K2 |
| L-12 | Making JAR Files for Library Packages, Import and Static Import Naming Convention for Packages | K2 |
| **Unit-2** | **Exception Handling & Multithreading** |  | **Quiz-3 & Quiz-4 / Assignment-2** |
| L-13 | The Idea behind Exception, Exceptions & Errors, Types of Exception, Checked and Un-Checked Exceptions | K2, K3 |
| L-14 | Control Flow in Exceptions, JVM Reaction to Exceptions, Use of try, catch | K2, K3 |
| L-15 | finally, throw, throws in Exception Handling | K2, K3 |
| L-16 | In-built and User Defined Exceptions | K2, K3 |
| L-17 | Byte Streams and Character Streams, Reading and Writing File in Java. | K2, K3 |
| L-18 | Thread, Thread Life Cycle, | K2, K3 |
| L-19 | Creating Threads, Thread Priorities | K2, K3 |
| L-20 | Synchronizing Threads, Inter-thread Communication | K2, K3 |
| **Unit-3** | **Java New Features** |  | **Quiz-5 & Quiz-6 / Assignment-5** |
| L-21 | Functional Interfaces, Lambda Expression | K2, K3 |
| L-22 | Method References, Stream API, Default Methods | K2, K3 |
| L-23 | Static Method, Base64 Encode and Decode | K2, K3 |
| L-24 | ForEach Method, Try-with resources, Type Annotations, Repeating Annotations | K2, K3 |
| L-25 | Java Module System, Diamond Syntax with 08 Inner Anonymous Class | K2, K3 |
| L-26 | Local Variable Type Inference, Switch Expressions, Yield Keyword | K2, K3 |
| L-27 | Text Blocks, Records, Sealed Classes | K2, K3 |
| **Unit-4** | **Java Collections Framework** |  |  |
| L-28 | Collection in Java, Collection Framework in Java, Hierarchy of Collection Framework | K2 | **Quiz-7 & Quiz-8 / Assignment-4** |
| L-29 | Iterator Interface, Collection Interface, List Interface, ArrayList, LinkedList | K2, K3 |
| L-30 | Vector, Stack, Queue Interface | K2, K3 |
| L-31 | Set Interface, HashSet, LinkedHashSet | K2, K3 |
| L-32 | SortedSet Interface, TreeSet, | K2, K3 |
| L-33 | Map Interface, HashMap Class, LinkedHashMap Class | K2, K3 |
| L-34 | TreeMap Class, Hashtable Class | K2, K3 |
| L-35 | Sorting | K2, K3 |
| L-36 | Comparable Interface, Comparator Interface, Properties Class in Java | K2, K3 |
| **Unit-5** | **Spring Framework & Spring Boot** |  |  |
| L-37 | Spring Core Basics-Spring Dependency Injection concepts, Spring Inversion of Control | K2, K3 | **Quiz-9 & Quiz-10 / Assignment-5** |
| L-38 | AOP, Bean Scopes- Singleton, Prototype | K2, K3 |
| L-39 | Request, Session, Application | K2, K3 |
| L-40 | Web Socket, Auto wiring | K2, K3 |
| L-41 | Annotations, Life Cycle Call backs | K2, K3 |
| L-42 | Bean Configuration styles | K2, K3 |
| L-43 | Spring Boot Build Systems, Spring Boot Code Structure, Spring Boot Runners, Logger | K2, K3 |
| L-44 | BUILDING RESTFUL WEB SERVICES | K2, K3 |
| L-45 | Rest Controller, Request Mapping | K2, K3 |
| L-46 | Request Body, path Variable, Request Parameter | K2, K3 |
| L-47 | GET, POST, PUT, DELETE APIs, Build Application | K2, K3 |

*KL- Bloom’s Knowledge Level (K1, K2, K3, K4, K5, K6)*

*K1 – Remember K2 – Understand K3 – Apply K4 – Analyze K5 – Evaluate K6 – Create*

**Text Books:**

**Herbert Schildt, "Java The complete reference", McGraw Hill Education**

**Craig Walls, “Spring Boot in Action” Manning Publication**

**Steven Holzner, “Java Black Book”, Dreamtech.**

**Balagurusamy E, “Programming in Java”, McGraw Hill**

**Reference Books:**

**Web references:**

https://www.youtube.com/watch?v=YpsFT50mths&list=PLd3UqWTnYXOlyAjYLwPflpu3yqH\_vAY8x

https://www.javatpoint.com/java-tutorial

**Signature of Faculty with Date**