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| **Course Title/ Code** | **Advanced Java(CSW308B)** |
| **Course Type** | **Core (Department)** |
| **Course Nature** | Workshop |
| **L-T-P-O Structure** | (0-0-3-0) |
| **Objectives** | Students will be able to design/Create GUI desktop applications and web applications with database connectivity along with client server architecture and frameworks for solving real life problems. |

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| **Syllabus** | **Sections** | **Weightage** |
| A | 25% |
| B | 25% |
| C | 25% |
| D | 25% |
| **TOTAL** | **100%** |

# Section-A

**GUI Application:** Review of Java Basic Features (OOPS concepts, data types), Event Handling: Delegation event model, event interfaces & classes, Swing: Swing containers, LayoutManager, Swing Components (JLabel, JFrame, JPanel, Swign buttons, JList, JComboBox, JRadiobuttons, JTextField, JTable ,JTree), Swing Menu. JAR files

**Java Database Connectivity:** Connectivity model, java.sql package, JDBC Exception classes, Database connectivity steps, Data manipulation and navigation, creating database applications.

# Section-B

**Java Generic:** type parameters, methods and classes**, Lambda expression** with single or multiple parameters**, Collection framework:** Collection interface and methods, List, Queue, Set & Map -interfaces and classes, Iterator, ListIterator & Enumeration interface.

**Networking:** Networking basics, Client/server model, Socket programming using Socket and ServerSocket class, Inet Address class, URL & URLConnection class, create networking applications.

# Section-C

**Java Servlets:** Lifecycle& Architecture, ServerletConfig, Servlet Context, Sharing information among servlet, GenericServlet, ServletRequest, and ServletResponse , HttpServletRequest, HttpServletResponse and HttpServlet ,Request-response, headers, GET, POST.

**Session Management:** Hidden form fields, Cookies, session tracking, Http Session, Exception handling and error pages.

# Section-D

Java Server Pages: Introduction, Architecture, Lifecycle , JSP Implicit object , JSP syntax: directives, scripting element, standard action elements, Model View Controller (MVC) , Data Sharing among JSP pages.

Frameworks in Java Struts: Introduction to the Apache Struts, MVC Architecture, Struts Architecture, How Struts Works? , Introduction to the Struts Controller, Introduction to the Struts Action Class, Using Struts ActionFrom Class, Using Struts HTML Tags, Introduction to Struts Validator Framework, Client Side Address Validation in Struts, Custom Validators Example, Developing Application with Struts Tiles.

**LIST OF EXPERIMENTS:**

1. GUI using Swings
2. Event Handling in GUI application
3. Java Database Connectivity (JDBC)
4. Java Generic program
5. Java Collection program
6. Networking and Socket Programming
7. Servlet application
8. JSP application
9. Struts framework

**Text Books:**

# Core Java, Volume II: Advanced Features 9th Edition by Cay Horstmann

# Java: The Complete Reference, Ninth Edition

1. Advanced Java Programming by Uttam K. Roy (Oxford university)

**Reference Book:**

1. O’Reilly Series for JSP and Servlets
2. O’Reilly Series for Swings and AWT