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|------------------------------|-------------------------------------------------------|
| <b>Branch Name:</b>          | <b>BCA ( Bachelor of Computer Application )</b>       |
| <b>Program Code:</b>         | <b>CS101</b>                                          |
| <b>Course Title :</b>        | <b>WEB APPLICATION DEVELOPMENT USING ADVANCE JAVA</b> |
| <b>Course Code :</b>         | <b>2CS1010601</b>                                     |
| <b>Pre-requisite Course:</b> | <b>Basic Knowledge of Core Java</b>                   |

**Course Objective:**

This course is intended :

- To make the students aware of detailed java terminologies such as multithreading, file handling, Java applet, awt controls, event handling, database programming using JDBC, etc.
- To make the students develop console based and GUI based applications using advance Technology.

| Teaching Scheme(Hours per week) |          |           |        | Evaluation Scheme (Marks) |            |                       |            |                       |            |                       |            |       |
|---------------------------------|----------|-----------|--------|---------------------------|------------|-----------------------|------------|-----------------------|------------|-----------------------|------------|-------|
| Lecture                         | Tutorial | Practical | Credit | Theory                    |            |                       |            | Practical             |            |                       |            | Total |
|                                 |          |           |        | University Assessment     |            | Continuous Assessment |            | University Assessment |            | Continuous Assessment |            |       |
|                                 |          |           |        | Min. Marks                | Max. Marks | Min. Marks            | Max. Marks | Min. Marks            | Max. Marks | Min. Marks            | Max. Marks |       |
| 4                               | 1        | 4         | 7      | 28                        | 70         | 12                    | 30         | 12                    | 30         | 08                    | 20         | 150   |

| Subject Contents |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |            |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------|
| Sr. No.          | Topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Total Hours | Weight (%) |
| 1.               | <b>Multithreading:</b><br>Introduction, Life Cycle of Thread, Extending Thread Class, Handling Multiple Threads, Various Thread Methods, Implementing Runnable Interface, Thread Priorities, Synchronization, Deadlock.                                                                                                                                                                                                                                                         | 9           | 20         |
| 2.               | <b>Managing Input and Output Files :</b> Concept of streams, Stream classes (Character Streams and Byte Streams classes), Creation of files.<br><b>Byte Stream Classes:</b> Input Stream classes and their methods, Output Stream classes and their methods, Reading and Writing Bytes, Handling Primitive Data Types.<br><b>Character Stream Classes:</b> Reader Stream classes, Writer Stream classes, Reading and Writing Characters.<br><b>Handling Random Access File.</b> | 10          | 20         |
| 3.               | <b>Applets :</b> Introduction, Applet life cycle, Passing parameters to Applet.<br><b>Graphics Class :</b> Drawing and Filling Shapes using Graphics class.<br>Working with Color class and Font class.                                                                                                                                                                                                                                                                         | 9           | 20         |
| 4.               | <b>Working with AWT Controls :</b> Labels, Buttons, TextField, Textarea, CheckBox, Check Box Group, Choice, List, ScrollBar, Using Layout Managers (FlowLayout, BorderLayout, GridLayout), Using Menu Bar and Menu, Sub Menu.<br><b>Event Handling :</b> Event Delegation Model, Event, Event Source & Event Listener, Event Classes (ActionEvent, AdjustmentEvent, ComponentEvent, ContainerEvent, FocusEvent, InputEvent, ItemEvent,                                          | 10          | 20         |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |    |    |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|
|    | KeyEvent, MouseEvent, MouseWheelEvent, TextEvent, WindowEvent), Event Listener Interfaces (ActionListener, AdjustmentListener, ComponentListener, ContainerListener, FocusListener, ItemListener, KeyListener, MouseListener, MouseMotionListener, MouseWheelListener, TextListener, WindowFocusListener, WindowListener), AdapterClasses.                                                                                                                                        |    |    |
| 5. | <b>Introduction to J2EE Platform and Architecture</b> :The J2EE Platform,The J2EE Architecture Containers, J2EE Technologies, Developing J2EE Applications.<br><b>Database Programming:</b><br>ODBC and JDBC Drivers,Accessing Databases with JDBC, Loading JDBC Driver, Connecting to Database with the java.sql Package, Creating Statements, Executing SQL and Processing Results of a Query, Using Prepared Statement, Using Callable Statement, Using Database Transactions. | 10 | 20 |

### Course Learning Outcomes:

At the end of this course, the student would be able :

- CLO. 1 - To understand and develop console based and GUI based applications using advance Java Technology.
- CLO. 2 - To develop applets for embedding in a webpage.
- CLO. 3 - To create appropriate classes for solving real world problems.
- CLO. 4 - To understand the concepts of Database Programming using JDBC.

|       | PO.1 | PO.2 | PO.3 | PO.4 | PO.5 | PO.6 | PO.7 | PO.8 | PO.9 | PO.10 | PO.11 | PO.12 | PSO.1 | PSO.2 | PSO.13 |
|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|--------|
| CLO.1 | H    |      | H    | H    |      | H    | M    | M    | H    | L     |       |       | H     | L     | H      |
| CLO.2 | H    |      |      | M    | M    |      |      |      | L    |       |       |       | M     |       |        |
| CLO.3 | H    |      |      | M    | M    |      |      |      | L    |       |       |       | M     |       | M      |
| CLO.4 | H    |      | H    | H    |      | H    |      | H    | M    | M     |       |       | H     | L     | H      |

### List of Text book :

1. The Complete Reference JAVA By Herbert Schildt, Tata Mc-Grow Hill.
2. Teach Yourself JAVA By Joseph O'Neil & Herb Schildt, Tata Mc-Grow Hill.

### List of Text Reference book :

1. Pravin Jain, "The class of Java" Pearson Education, (2010).
2. Ivor Horton, "Beginning Java 2", JDK 5 Edition, Wiley Computer Publishing, (2007)
3. Marty Hall, Larry Brown, "Core Servlets and JavaServer Pages Volume – 1", Pearson Education, 2nd Edition. (2004)
5. Subrahmanyam Allamaraju, "Professional Java Server Programming J2EE 1.3 Edition", Apress (2007).

### E-Resources/ WebLinks:

- <https://www.javatpoint.com/what-is-advance-java>
- <https://way2java.com/>
- <http://www.studytonight.com/java/>
- <https://beginnersbook.com/java-tutorial-for-beginners-with-examples/>
- <https://www.tutorialspoint.com/java/index.htm>

**List of Experiments:**

**Note :** The experiment list provided beneath is for reference only. The course teacher may change/formulate it as per his/her methodology and requirement.

1. Write a program to create threads using Thread class.
2. Write a program that implements yield(), stop() and sleep() Methods.
3. Write a program to demonstrate the priority of Threads.
4. Write a program to implement the use of synchronization in thread.
5. Write a program to implement Runnable interface.
6. Write a program to write and read bytes from a file.
7. Write a program to copy bytes from one file to another file.
8. Write a program to store and retrieve integers using single file.
9. Write a program to write and read primitive data.
10. Write a program to write and read characters from a file.
11. Write a program to copy characters from one file into another file.
12. Write a program to write and read data using random access file.
13. Write a program to create an Applet that displays "My First Applet Program".
14. Write a program to implement Applet methods - init(),start(),stop() and destroy().
15. Write a program to demonstrate the use of passing parameter to applet.
16. Write a program to implement various methods of Graphics class.
17. Write a program to implement Color class.
18. Write a program to implement Font class.
19. Write a program to implement labels and buttons.
20. Write a program to implement text fields, text areas and Buttons.
21. Write a program to implement check boxes.
22. Write a program to implement choice lists.
23. Write a program to implement listbox.
24. Write a program to implement scrollbars.
25. Write a program to implement different layout managers.
26. Write a program to implement menu and submenus.
27. Write a program to create database application that uses JDBC driver successfully connected and print proper message like "Connection has been done successfully".
28. Write a program to create a console application to insert records, retrieve records and display records on the console.
29. Write a program to perform the database operations like insert, update, delete and select for following table named - Student. To perform the above operations create below table named – "Student".

| Field Name | Field Type |
|------------|------------|
| SNo        | Integer    |
| Sname      | Varchar    |
| SPer       | Numeric    |

30. Write a program to develop a Graphical User Interface (GUI) that performs the SQL operations- (1) Insert (2) update (3) Delete (d) Select.
31. Write a program that accepts SNo as input from user and display the record of student as per input.