GLS UNIVERSITY
Bachelor of Computer Applications (BCA)
(Core Course)
Semester-IV
0301401 ADVANCED JAVA

1. Course Objective:

- This module aims to introduce the concepts of advanced programming and practice on reusing components.
- Understand modern programming practice, with the goal of making students better programmers.
- Understand various Java technologies like reading and writing data from Input/output Files, Graphical User Interface (GUI), collection classes, Swing, Java database connectivity (JDBC).

2. Course Duration:

The course will have sessions which are divided into five modules. Each module consists of nine sessions of 60 minutes each and carries a weightage of 20%.

3. Course Contents:

Module No.	Modules/Sub-Modules	No. of Sessions	Marks Weightage

I	**File Handling**
	• I/O Stream
	• The File Class
	• Byte Stream
	  ○ InputStream
	  ○ OutputStream
	• Disk File Handling
	  ○ InputStream
	  ○ OutputStream
	• Filtered Byte Stream
	  ○ DataInputStream
	  ○ DataOutputStream
	• SequenceInputStream
	• ObjectOutputStream
	• ObjectInputStream
	• RandomAccess File
		09	20%

II	**Java Collection Framework** • Introduction • Collection Class • LinkedList • ArrayList • Stack • Queue • Set – TreeSet, HashSet, LinkedHashSet • Maps - TreeMap, HashMap, HashTable • Iterator	09	20%

	• ListIterator		

III	**Event Handling ,Swing and GUI components**
	• Event Handling
	• Delegation Event Model
	• Events
	  ○ Action Event
	  ○ Adjustment Event
	  ○ Component Event
	  ○ Item Event
	  ○ Key Event
	  ○ Mouse Event
	  ○ Text Event
	  ○ Window Event
	• Event Listeners
	• Registering Listeners with source
	• Swing GUI Components
	  ○ Jcomponent
	  ○ JFrame
	  ○ JButton
	  ○ JLabel
		09	20%

IV	**Swing, GUI components and Layout Manager**
	• JToggleButton
	• JCheckBox
	• JRadioButton
	• JList
	• JScrollBar
	• JTextField
	• JPasswordField
	• JTextArea
	• JComboBox
	• JMenuItem, JMenu, JMenuBar
	• LayoutManagers
	  ○ BorderLayout
	  ○ FlowLayout
	  ○ GridLayout
	  ○ CardLayout
		09	20%

V	**Database Connectivity (JDBC)**
	• Database Connectivity (JDBC)
	• JDBC and ODBC
	  ○ Types of Drivers
	  ○ Java SQL Package
	• Using a JDBC
	• Driver Manager-Creating Connection
	• Connection Interface – Creating Statement
	• Types of statements
	  ○ Statement
	  ○ PreparedStatement
	  ○ CollableStatement
	• Statement Interface – Executing Statements
	• Result Set Interface
		09	20%

4. Teaching Methods:

The following pedagogical tools will be used to teach this course:

1. Lectures and Discussions
2. Practical demos
3. Assignments and Presentations

5. Evaluation:

The students will be evaluated on a continuous basis and broadly follow the scheme given below:

1.	Assignments / Presentations	30% (Internal Assessment)
2.	Internal Examination	20% (Internal Assessment)
3.	External Examination	50% (External Assessment)

6. Basic Text Books:

Sr. No	Author/s	Name of the book	Publisher	Edition
T1	Hari Mohan Pandey	Java Programming	Pearson	Latest

7. Reference Books:

Sr. No	Author/s	Name of the book	Publisher	Edition
R1	Sachin Malhotra Saurabh Choudhary	Programming in Java	Oxford	Latest
R2	Herbert Schildt	Java -The complete Reference	Mc GrawHill	Latest
R3	M.P. Bhave S. A Patekar	Programming with Java	Pearson	Latest
R4	Y. Daniel Liang	Introduction to Java Programming	Person	7th
R5	Dr K. Somasundaram	Programming in Java2	JAICO Publishing House	Latest

8. List of Journals / Periodicals / Magazines / Newspapers etc.:

Sr. No	Links
1	http://www.tutorialspoint.com/java/
2	portal.aauj.edu/e_books/teach_your_self_java_in_21_days.pdf
3	http://www.learnjavaonline.org/
4	https://docs.oracle.com/javase/tutorial/java/

9. Session Plan:

Session No.	Topics/ Chapters
1	I/O Stream
2	The File Class
3	Byte Stream
4	Disk File Handling

5	Filtered Byte Stream
6	SequenceInputStream
7	ObjectInputStream
8	ObjectOutputStream
9	RandomAccess File
10	Introduction to Collection
11	Linked List with Iterator
12	ArrayList with ListIterator
13	Stack
14	Queue
15	TreeSet, HashSet
16	LinkedHashSet
17	TreeMap
18	HashMap, HashTable
19	Events
20	Events Types
21	Event Listeners
22	Registering Listeners with source
23	Adapter Classes
24	Jcomponent
25	JFrame
26	JButton
27	JLabel
28	JToggleButton
29	JCheckBox
30	JRadioButton
31	JList
32	JScrollBar & scrollpane
33	JtextField, JPasswordField
34	JtextArea, JComboBox
35	JMenuItem, JMenu, JMenuBar
36	LayoutManagers
37	JDBC Instruction
38	JDBC and ODBC
39	Types of Drivers
40	Driver Manager-Creating Connection
41	Connection Interface – Creating Statement
42	Statement Interface – Executing Statements
43	Types of Statements
44-45	Result Set Interface

10. Learning Outcome:

Upon the completion of this course, students will be able to

- Develop Graphical User Interface based software using advanced Java.
- Understand the object-oriented approach, GUI components, database connectivity in programming.
- Design a computer program to solve real world problems based on object-oriented principles.
- Develop application with database connectivity through the JDBC-ODBC.