

**Department of Liberal Education**  
**Era University, Lucknow**  
**Course Outline**  
**Effective From: 2023-24**

<b>Name of the Program</b>	<b>B.A. / B.Sc. (LIBERAL EDUCATION)</b>			<b>Year/ Semester:</b>	<b>2<sup>nd</sup> /4<sup>th</sup></b>
<b>Course Name</b>	Java Programming Lab	<b>Course Code:</b>	<b>CS202P</b>	<b>Type:</b>	<b>Practical</b>
<b>Credits</b>	<b>01</b>			<b>Total Practical Hours:</b>	<b>30</b>
<b>Evaluation Spread</b>	<b>Internal Continuous Assesment:</b>	<b>10 Marks</b>		<b>End Term Exam:</b>	<b>15 Marks</b>
<b>Type of Course</b>	<input type="radio"/> Compulsory	<input checked="" type="radio"/> Core	<input type="radio"/> Creative	<input type="radio"/> Life Skill	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>• To learn the object oriented concepts and apply them in solving problems in java.</li> <li>• To learn the concepts of Inheritance, Interfaces and Polymorphism.</li> <li>• To learn the concepts of Exception handling, Multithreading, and Packages.</li> <li>• To learn the concepts of Graphical User Interface using Applets and AWT Controls.</li> </ul>				
<b>Course Outcomes (CO):</b> <i>After the successful course completion, learners will develop following attributes:</i>					
<b>Course Outcome (CO)</b>	<b>Attributes</b>				
<b>CO1</b>	Able to implement classes, objects, members of a class and relationships among them needed for a specific problem.				
<b>CO2</b>	Able to implement programs using concepts of Inheritance, Interfaces, and Polymorphism.				
<b>CO3</b>	Able to develop Java Programs using the concepts of Exception Handling Multithreading, and Packages.				
<b>CO4</b>	Able to develop the GUI based web applications using Applets and various AWT controls.				
<b>Pedagogy</b>	Interactive, discussion-based, student-centered, program outputs.				
<b>Internal Evaluation Mode</b>	Experiment-Writing and Conductance File Maintenance/ Laboratory Record Continuous Attendance and Participation				
<b>Practical No.</b>	<b>Experiments</b>			<b>Contact Hours</b>	<b>Mapped CO</b>
<b>1.</b>	<ul style="list-style-type: none"> <li>• Program illustrating Classes and Objects.</li> <li>• Write a Java Program to define a class, describe its constructor, overload the Constructors, and instantiate its object.</li> </ul>			<b>4</b>	<b>CO1, CO2</b>
<b>2.</b>	<ul style="list-style-type: none"> <li>• Write a Java Program to implement inheritance.</li> <li>• Program illustrating Method Overloading and Method Overriding.</li> </ul>			<b>6</b>	<b>CO2</b>
<b>3.</b>	<ul style="list-style-type: none"> <li>• Program illustrating concept of Interface.</li> <li>• Program illustrating use of Final and Super keyword.</li> </ul>			<b>6</b>	<b>CO3</b>
<b>4.</b>	<ul style="list-style-type: none"> <li>• Write a Java program to practice using the String class and its methods.</li> <li>• Write a Java program to implement the concept of importing classes from user-defined packages and creating packages.</li> </ul>			<b>6</b>	<b>CO2, CO4</b>

5.	<ul style="list-style-type: none"> <li>The program illustrates the following           <ol style="list-style-type: none"> <li>Handling predefined exceptions.</li> <li>Handling user-defined exceptions.</li> </ol> </li> <li>Program for creating multiple threads           <ol style="list-style-type: none"> <li>Using Thread class.</li> <li>Using Runnable Interface.</li> </ol> </li> </ul>	8	CO3, CO4
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### CO-PO and PSO Mapping

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	1	1	2		1	1	2	3	3	1	2	2	2	2
CO2	2	2	1	1	1	2	1	2	2	2	1	2	2	1
CO3	1	3	3	1	1	3	2	1	2	2	1	1	2	3
CO4	1	2	2			1	3	1	2	3	1	2	1	1

*Strong contribution-3, Average contribution-2, Low contribution-1,*

### Suggested Readings:

<b>Reference Books</b>	<ol style="list-style-type: none"> <li>Java The Complete Reference, Herbert Schildt, TMH, 9<sup>th</sup> Edition, 2014.</li> <li>Peter Norton, "Peter Norton Guide to Java Programming", Techmedia Publications.</li> </ol>
<b>E-Resources</b>	<ul style="list-style-type: none"> <li><a href="https://onlinecourses.nptel.ac.in/noc22_cs47">https://onlinecourses.nptel.ac.in/noc22_cs47</a></li> <li><a href="https://archive.nptel.ac.in/courses/106/106/106106220/">https://archive.nptel.ac.in/courses/106/106/106106220/</a></li> </ul>

### Internal Practical Evaluation:

Component	Marks
Experiment-Writing and Conductance	5
File Maintenance/ Laboratory Record	2
Continuous Attendance and Participation	1
Viva-Voce	2
<b>Total Marks</b>	10

Course created by: Dr. Mohd Haleem

Signature:

Approved by: Prof. Mansaf Alam

Signature:

