Maharashtra State Board of Technical Education, Mumbai
LABORATORY PLAN (LP)
Academic Year: 2025–2026

<div style="float:right">**K-2A**</div>

Academic Year: 2025-26   **Date:** 15/12/2025

Institute Name & Code: K. K. Wagh Polytechnic, Nashik-3 (0078)

Program & Code: Artificial Intelligence & Machine Learning (AN) **Course Code &. Abbr.:** 314317 (JPR)

Course Name: Java Programming   **Name of Faculty:** Mrs. P. H. Nawale

Class: SYAN   **Course Index:** 402   **Semester:** IV   **Scheme:** K   **Total Hrs:** 60

- ## Course Outcomes (COs):

  By learning course Java Programming (JPR-314317) Second Year students will be able to:

  - CO402.1 - Develop java program using classes and objects.

  - CO402.2 - Develop java program for implementing code reusability concept.

  - CO402.3 - Develop program to implement multithreading and exception handling.

  - CO402.4 - Develop java program for implementing event handling using window-based application components.

  - CO402.5 - Implements network programming in java.

  - CO402.6 - Develop java program for managing database

- ## Teaching-Learning and Assessment Scheme:

Course Code	Course Title	Abbr	Course Category/s	Learning Scheme					Credits	Paper Duration	Assessment Scheme										Total Marks
				Actual Contact Hrs/Week							Theory				Based on LL Practical				Based on SL		
											FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
				CL	TL	LL	SLH	NLH			Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
314317	Java Programming	JPR	AEC	4	-	4	2	10	5	3	30	70	100	40	25	10	50#	20	25	10	200

# indicates External Practical Exam.

- ## Laboratory Learning Outcome (LLO)

LLO 1.1 Install any IDE software application.

LLO 2.1 Implement programs to evaluate different types of Expressions.

LLO 3.1 Develop program to implement different control structures.

LLO 4.1 Develop program to implement different control structures.

LLO 5.1 Implement array and vectors in Java

LLO 6.1 Convert primitive data types into object and vice-versa.

LLO 7.1 Initialize objects using constructors.

LLO 8.1 Implement concepts of inheritance for code reusability.

LLO 8.1 Implement concepts of inheritance for code reusability.   .

LLO 10.1 Implement packages in Java.

LLO 11.1 Identify the different types of errors using exception handling

LLO 12.1 Manage different types of user defined exceptions.

LLO 13.1 Execute different processes simultaneously using multithreading.

LLO 14.1 Design GUI using different AWT components.

LLO 15.1 Design GUI using different menu class.
LLO 16.1 Design GUI using border layout manager.
LLO 17.1 Design GUI using grid layout manager.
LLO 18.1 Implement swing components in a frame.
LLO 19.1 Design tree and table using advanced swing components in a frame.
LLO 20.1 Implement various keys and mouse events.
LLO 21.1 Implement action event in java.
LLO 22.1 Implement text event in java.
LLO 23.1 Extract the hostname and IP address using InetAddress class.
LLO 24.1 Retrieve various components of URL using different methods of URL and URLConnection class.
LLO 25.1 Implement client-server TCP based communication.
LLO 26.1 Implement client- server UDP based communication.
LLO 27.1 Make database connectivity using appropriate JDBC driver.
LLO 28.1 Manage database using JDBC.
LLO 29.1 Manage database using JDBC.
LLO 30.1 Implement dynamic query.

- **Lab Plan:**

Sr. No.	CO	LLO	Name of Practical	Planned Date	Performance Date	Remarks	Related Self Learning (if any)
1.	CO402.1	1.1	Setup Java Programming development environment using: 1) Command prompt. (Classpath and path setup) 2) Any IDE (Eclipse, Netbeans, VScode, Jcreator etc.).	A-15/12/2025 B-16/12/2025 C-17/12/2025			
2.	CO402.1	3.1	Write programs to demonstrate use of: 1) if statements (all forms of if statement) 2) Switch – Case statement 3) Different types of Loops (for, while and do..While).	A-18/12/2025 B-20/12/2025 C-19/12/2025			
3.	CO402.1	4.1	* Write programs for implementation of different methods of: 1) String class.2) StringBuffer class.	A-22/12/2025 B-23/12/2025 C-24/12/2025			
4.	CO402.1	5.1	* Write program to demonstrate 1) Use of Array 2) Use of Vectors	A-29/12/2025 B-27/12/2025 C-26/12/2025			
5.	CO402.2	8.1	Develop program to implement: 1) Single Inheritance 2) Multilevel Inheritance	A-01/01/2026 B-30/12/2025 C-31/12/2025			
6.	CO402.2	9.1	* Develop program for implementation of interface	A-05/01/2026 B-03/01/2026 C-20/01/2026			
7.	CO402.2	10.1	*Write programs to demonstrate use of: 1) Built in Packages 2) User defined packages	A-08/01/2026 B-06/01/2026 C-02/01/2026			
8.	CO402.3	11.1	Write programs for implementation of try, catch and finally block.	A-12/01/2026 B-10/01/2026 C-07/01/2026			
9.	CO402.3	12.1	* Write programs for implementation of throw, throws clause.	A-19/01/2026 B-13/01/2026 C-09/01/2026			
10.	CO402.3	13.1	*Write programs using multithreading	A-22/01/2026 B-17/01/2026			

				C-14/01/2026			
11.	CO402.4	14.1	* Write program to design any type of form using AWT components.	A-02/02/2026 B-20/01/2026 C-16/01/2026			
12	CO402.4	15.1	Write program to create a menu bar with various menu items and sub menu items.	A-05/02/2026 B-24/01/2026 C-21/01/2026			
13	CO402.4	17.1	*Write program to design a calculator to demonstrate the use of grid layout using swing components.	A-09/02/2026 B-31/01/2026 C-23/01/2026			
14	CO402.4	18.1	Write program using swing to display a JComboBox in a JFrame .	A-12/02/2026 B-03/02/2026 C-30/01/2026			
15	CO402.4	20.1	* Write program to handle key events and mouse events.	A-16/02/2026 B-07/02/2026 C-04/02/2026			
16	CO402.4	21.1	*Write program to implement action event in frame using swing components.	A-23/02/2026 B-10/02/2026 C-06/02/2026			
17	CO402.4	22.1	Write program to handle text event on swing components.	A-26/02/2026 B-14/02/2026 C-11/02/2026			
18	CO402.5	23.1	Write program to retrieve hostname and IP address using InetAddress class.	A-02/03/2026 B-17/02/2026 C-13/02/2026			
19	CO402.5	24.1	*Write program to demonstrate various methods of: 1) URL class. 2)URL Connection	A-05/03/2026 B-21/02/2026 C-18/02/2026			
20	CO402.5	25.1	*Write program that demonstrates connection oriented communication using socket.	A-09/03/2026 B-24/02/2026 C-20/02/2026			
21	CO402.6	27.1	*Write program to: 1) Create sample database. 2) Make connectivity with database.	A-12/03/2026 B-28/02/2026 C-25/02/2026			
22	CO402.6	28.1	*Write program to implement following operations on database: 1) Insert Record 2) Update Record 3) Delete Record	A-16/03/2026 B-03/03/2026 C-27/02/2026			
23	CO402.6	29.1	Write program to demonstrate the use of PreparedStatement.	A-19/03/2026 B-07/03/2026 C-04/03/2026			
24	CO402.6	30.1	*Write program to retrieve data from table using ResultSet interface. (Use various methods of navigation methods).	A-23/03/2026 B-10/03/2026 C-06/03/2026			

- **Formative Assessment Criteria:**

Performance Indicators		Weightage
Process Related (15 Marks)		**60%**
1	Logic formation	30%

2	Debugging ability	20%	
	Follow ethical practices	10%	
Product Related (10 Marks)		**40%**	
1	Expected output	15%	
2	Timely Submission	15%	
4	Answer to sample questions	10%	
Total (25 Marks)		100%	

- **Rules for Formative Assessment:**
  1. Formative assessment of each practical is based on Process related (15 marks) and Product related (10 marks) - Total out of 25 marks as per the assessment scheme prescribed by MSBTE,
  2. Final Formative Assessment (F.A.) of 25 marks is calculated as follows:
     *FA Marks = ((Total obtained marks))/ (25*Total Number of parcticals)*

- **Rules for Summative Assessment:**
  1. A comprehensive Final Practical End Semester examination (SA-PR of 50 Marks) will be conducted by MSBTE at the end of semester. Examiner for this examination will be External examiner.
  2. The schedule of MSBTE Practical Examination will be display on Notice board prior to examination.

- **Practical wise LLO-CO Mapping:**

PR. No.	LLO	CO402.1	CO402.2	CO402.3	CO402.4	CO402.5	CO402.6
Practical 1	1.1	✔					
Practical 2	3.1	✔					
Practical 3	4.1	✔					
Practical 4	5.1	✔					
Practical 5	8.1		✔				
Practical 6	9.1		✔				
Practical 7	10.1		✔				
Practical 8	11.1			✔			
Practical 9	12.1			✔			
Practical 10	13.1			✔			
Practical 11	14.1				✔		
Practical 12	15.1				✔		
Practical 13	17.1				✔		
Practical 14	18.1				✔		
Practical 15	20.1				✔		
Practical 16	21.1				✔		
Practical 17	22.1				✔		
Practical 18	23.1					✔	
Practical 19	24.1					✔	
Practical 20	25.1					✔	
Practical 21	27.1						✔
Practical 22	28.1						✔
Practical 23	29.1						✔
Practical 24	30.1						✔

s

● SUGGESTED LEARNING MATERIALS / BOOKS

Sr.No	Author	Title	Publisher
1	E Balaguruswamy	Programming with JAVA	Mcgraw Hill Education (India) Private Limited
2	Schildt Herbert	Java Complete Reference	Mcgraw Hill Education
3	Holzner, Steven et al	Java 8 Programming Black Book	Dreamtech Press

● LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	https://www.javatpoint.com/java-tutorial	All content
2	https://www.w3schools.com/java/	All content
3	https://www.tutorialspoint.com/java/index.htm	All content
4	https://www.programiz.com/java-programming/online-compiler/	Online compiler for java
5	https://www.odbms.org/wp-content/uploads/2013/11/009.01-Arlow-JDBC-Tutorial-July-2005.pdf	Database Connectivity

● Tools for conducting Practicals:
1.VS Code   2. YouTube   3. Eclipse

Mrs. P. H. Nawale\ Mrs. S.J.Wagh   Mrs. R. Y. Thombare
Faculty   **(HOD-AN)**

CC: 1. Lab File   2. Course File-JPR   3. Notice Board-AN Lab-03   4. Formative Assessment