

Maharashtra State Board of Technical Education, Mumbai

Laboratory Plan (LP-PR)/ Course Information Sheet (CIS)

Academic Year: 2025-26

Institute Name: K. K. Wagh Polytechnic, Nashik

Program and Code: Computer Technology (CM)

Course Name: Java Programming (JPR) **Course Index:** CI403 **Learning Hrs:** 60

Class: SYCM-Mac **Semester:** 4th **Scheme:** K

Date: 15/12/2025

Institute Code: 0078

Course Code & Abbr.: 314317(JPR)

Name of Faculty: Mr.S.K.Mahajan

K-2

• Teaching-Learning & Assessment Scheme:

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

Abbreviations: CL- Class Room Learning, TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS – Indian Knowledge System, SLA - Self Learning Assessment

Legends: @ Internal Assessment, # External Assessment, *# On Line Examination, @\$ Internal Online Examination

• Course Outcomes (COs): Theory & Practical:

By learning course of Java Programming (JPR-314317), the Second Year Computer Technology students will be able to:

CO No.	Course Outcomes (COs) / Unit Outcomes (UOs)
CO403.1(CO1)	Basic Syntactical Constructs in Java.
CO403.2(CO2)	Inheritance, Interface and Packages.
CO403.3(CO3)	Exception Handling and Multithreading.
CO403.4(CO4)	Event handling using Abstract Window Toolkit (AWT) & Swings Components.
CO403.5(CO5)	Basics of Network Programming.
CO403.6(CO6)	Interacting with Database.

• COs, Practical Laboratory Learning Outcome (LLOs) and Mapping:

Pr. No	COs	LLO	Practical -Laboratory Learning Outcome (LLO)
PR 1	CO403.3 (CO1)	LLO 1.1	Install any IDE software application.
PR 2	CO403.3 (CO1)	LLO 2.1	Implement programs to evaluate different types of Expressions.
PR 3	CO403.3 (CO1)	LLO 3.1	Develop program to implement different control structures.
PR 4	CO403.2 (CO1)	LLO 4.1	Develop program to implement different control structures.
PR 5	CO403.2 (CO1)	LLO 5.1	Implement array and vectors in Java.
PR 6	CO403.2 (CO1)	LLO 6.1	Convert primitive data types into object and vice-versa.
PR 7	CO403.2 (CO1)	LLO 7.1	Initialize objects using constructors.
PR 8	CO403.3 (CO2)	LLO 8.1	Implement concepts of inheritance for code reusability.
PR 9	CO403.3 (CO2)	LLO 9.1	Implement multiple inheritance.
PR 10	CO403.3 (CO2)	LLO 10.1	Implement packages in Java.
PR 11	CO403.3 (CO3)	LLO 11.1	Identify the different types of errors using exception handling.
PR 12	CO403.3 (CO3)	LLO 12.1	Manage different types of user defined exceptions.
PR 13	CO403.4 (CO3)	LLO 13.1	Execute different processes simultaneously using multithreading.
PR 14	CO403.4 (CO4)	LLO 14.1	Design GUI using different AWT components.
PR 15	CO403.4 (CO4)	LLO 15.1	Design GUI using different menu class.
PR 16	CO403.4 (CO4)	LLO 16.1	Design GUI using border layout manager.

PR 17	CO403.4 (CO4)	LLO 17.1	Design GUI using grid layout manager.
PR 18	CO403.4 (CO4)	LLO 18.1	Implement swing components in a frame.
PR 19	CO403.4 (CO4)	LLO 19.1	Design tree and table using advanced swing components in a frame.
PR 20	CO403.1 (CO1)	LLO 20.1	Implement various keys and mouse events.
PR 21	CO403.4 (CO4)	LLO 21.1	Implement action event in java.
PR 22	CO403.4 (CO4)	LLO 22.1	Implement text event in java.
PR 23	CO403.4 (CO5)	LLO 23.1	Extract the host name and IP address using InetAddress class.
PR 24	CO403.5 (CO5)	LLO 24.1	Retrieve various components of URL using different methods of URL and URL Connection class.
PR 25	CO403.5 (CO5)	LLO 25.1	Implement client-server TCP based communication.
PR 26	CO403.4 (CO5)	LLO 26.1	Implement client-server UDP based communication.
PR 27	CO403.1 (CO6)	LLO 27.1	Make database connectivity using appropriate JDBC driver.
PR 28	CO403.1 (CO6)	LLO 28.1	Manage database using JDBC.
PR 29	CO403.1 (CO6)	LLO 29.1	Manage database using JDBC.
PR 30	CO403.1 (CO6)	LLO 30.1	Implement dynamic query

• **Practical/Laboratory Plan:**

Sr No	LLOs	Practical Titles	Planned Dates		Remark & Faculty Sign with Date
			From	To	
1	LLO 1.1	* Setup Java Programming development environment using: 1.Command prompt.(Class path and path setup) 2. Any IDE (Eclipse, Net beans, VScode, Jcreator etc.).	A-17/12/2025 B-15/12/2025 C-16/12/2025	A-20/12/2025 B-18/12/2025 C-19/12/2025	
2	LLO 2.1	Write programs to evaluate different types of expressions.	A-20/12/2025 B-18/12/2025 C-19/12/2025	A-24/12/2025 B-22/12/2025 C-23/12/2025	
3	LLO 3.1	Write programs to demonstrate use of: - if statements (all forms of if statement) - Switch – Case statement - Different types of Loops (for, while and do... while).	A-24/12/2025 B-22/12/2025 C-23/12/2025	A-29/12/2025 B-26/12/2025 C-27/12/2025	
4	LLO 4.1	*Write programs for implementation of different methods of: - String class. - String Buffer class.	A-29/12/2025 B-26/12/2025 C-27/12/2025	A-03/01/2026 B-01/01/2026 C-02/01/2026	
5	LLO 5.1	* Write programs to demonstrate: - Use of Array. - Use of Vectors.	A-29/12/2026 B-30/12/2026 C-31/12/2026	A-03/01/2026 B-01/01/2026 C-02/01/2026	
6	LLO 6.1	Write programs using Wrapper Class : - To convert primitive into object. - To convert object into primitive.	A-03/01/2026 B-01/01/2026 C-02/01/2026	A-07/01/2026 B-05/01/2026 C-06/01/2026	
7	LLO 7.1	Develop a program for implementation of different types of constructors.	A-07/01/2026 B-05/01/2026 C-06/01/2026	A-10/01/2026 B-08/01/2026 C-09/01/2026	
8	LLO 8.1	Develop program to implement: - Single inheritance. - Multilevel inheritance.	A-10/01/2026 B-08/01/2026 C-09/01/2026	A-14/01/2026 B-12/01/2026 C-13/01/2026	

9	LLO 9.1	* Develop program for implementation of interface.	A-14/01/2026 B-12/01/2026 C-13/01/2026	A-15/01/2026 B-16/01/2026 C-17/01/2026	
10	LLO 10.1	*Write programs to demonstrate use of : - Built in packages. - User defined packages.	A-15/01/2026 B-16/01/2026 C-17/01/2026	A-21/01/2026 B-19/01/2026 C-20/01/2026	
11	LLO 11.1	Write programs for implementation of try catch and finally block.	A-21/01/2026 B-19/01/2026 C-20/01/2026	A-24/01/2026 B-22/01/2026 C-23/01/2026	
12	LLO 12.1	*Write programs for implementation of throw, throws clause.	A-24/01/2026 B-22/01/2026 C-23/01/2026	A-29/01/2026 B-27/01/2026 C-28/01/2026	
13	LLO 13.1	*Write programs using multithreading.	A-29/01/2026 B-27/01/2026 C-28/01/2026	A-31/01/2026 B-29/01/2026 C-30/01/2026	
14	LLO 14.1	* Write program to design any type of form using AWT components.	A-31/01/2026 B-29/01/2026 C-30/01/2026	A-04/02/2026 B-02/02/2026 C-03/02/2026	
15	LLO 15.1	Write program to create a menu bar with various menu items and sub menu items.	A-04/02/2026 B-02/02/2026 C-03/02/2026	A-07/02/2026 B-05/02/2026 C-06/02/2026	
16	LLO 16.1	Write program to demonstrate the use of border layout. The layout shows four buttons at four sides with captions “left”, “right”, “top” and “bottom” using Swing Components.	A-07/02/2026 B-05/02/2026 C-06/02/2026	A-11/02/2026 B-09/02/2026 C-10/02/2026	
17	LLO 17.1	*Write program to design a calculator to demonstrate the use of grid layout using swing components.	A-11/02/2026 B-09/02/2026 C-10/02/2026	A-14/02/2026 B-12/02/2026 C-13/02/2026	
18	LLO 18.1	Write program using swing to display a JCombo Box in a JFrame.	A-14/02/2026 B-12/02/2026 C-13/02/2026	A-18/02/2026 B-16/02/2026 C-17/02/2026	
19	LLO 19.1	Write program to create JTree and JTable.	A-18/02/2026 B-16/02/2026 C-17/02/2026	A-23/02/2026 B-20/02/2026 C-21/02/2026	
20	LLO 20.1	* Write program to handle key events and mouse events.	A-23/02/2026 B-20/02/2026 C-21/02/2026	A-25/02/2026 B-23/02/2026 C-24/02/2026	
21	LLO 21.1	*Write program to implement action event in frame using swing components.	A-25/02/2026 B-23/02/2026 C-24/02/2026	A-28/02/2026 B-26/02/2026 C-27/02/2026	
22	LLO 22.1	Write program to handle text event on swing components.	A-28/02/2026 B-26/02/2026 C-27/02/2026	A-06/03/2026 B-04/03/2026 C-05/03/2026	
23	LLO 23.1	Write program to retrieve hostname and IP address using InetAddress class.	A-06/03/2026 B-04/03/2026 C-05/03/2026	A-11/03/2026 B-09/03/2026 C-10/03/2026	
24	LLO 24.1	*Write program to demonstrate various methods of: - URL class. - URL Connection.	A-11/03/2026 B-09/03/2026 C-10/03/2026	A-14/03/2026 B-12/03/2026 C-13/03/2026	
25	LLO 25.1	*Write program that demonstrates connection oriented communication using socket.	A-14/03/2026 B-12/03/2026 C-13/03/2026	A-18/03/2026 B-16/03/2026 C-17/03/2026	
26	LLO 26.1	Write program to demonstrate sending and receiving data through datagram.	A-18/03/2026 B-16/03/2026 C-17/03/2026	A-18/03/2026 B-16/03/2026 C-17/03/2026	

27	LLO 27.1	*Write program to: - Create sample database. - Make connectivity with database.	A-18/03/2026 B-16/03/2026 C-17/03/2026	A-25/03/2026 B-23/03/2026 C-24/03/2026	
28	LLO 28.1	*Write program to implement following operations on database: - Insert record. - Update record. - Delete record.	A-25/03/2026 B-23/03/2026 C-24/03/2026	A-28/03/2026 B-26/03/2026 C-27/03/2026	
29	LLO 29.1	Write program to demonstrate the use of Prepared Statement.	A-28/03/2026 B-26/03/2026 C-27/03/2026	A-28/03/2026 B-26/03/2026 C-27/03/2026	
30	LLO 30.1	*Write program to retrieve data from table using ResultSet interface. (Use various methods of navigation methods).	A-28/03/2026 B-26/03/2026 C-27/03/2026	A-28/03/2026 B-26/03/2026 C-27/03/2026	

Note: -Out of above suggestive LLOs -'*' Marked Practical's (LLOs) Are mandatory.
 -Minimum 80% of above list of lab experiment are to be performed.
 -Judicial mix of LLOs is to be performed to achieve desired outcomes.

❖ Formative & Summative Assessment Criteria:

- Theory Assessment:**

- a) **Formative assessment (TH-FA):**

- Two offline class tests each of 30 marks will be conducted as per MSBTE guidelines. The average of two class test marks will be considered for final TH-FA(Average) out of 30 marks.

- b) **Summative Assessment (TH- SA):**

- The comprehensive End semester assessment will be done by MSBTE by a Theory written Examination for 70 marks. Question Paper setting and the Answer book Assessment is performed by MSBTE.
- Final Theory Score out of 100 Marks will be derived as the total score as below:

$$\text{TH-SA [out of 70]} + \text{TH- FA [Average out of 30]} = 100 \text{ Marks}$$

- Practical Assessment:**

- Formative Assessment (FA) of each practical/experiment will be performed progressively for 50 marks. The assessment will be performed based on the Regularity in Practical Performance, Tool Selection Ability, Use of Appropriate tool to perform the Identified tasks, Algorithm/Solution developed, Quality of output achieved, Answer to sample questions and Submit report in total time.
- Final Term Work (FA-PR) of 50 marks is calculated based on scores in Formative Assessment for all practicals/experiments as:
 - Term Work Marks (FA-PR)** = ((Sum of Total Marks Scored in FA x Max Marks by Scheme) / (Total Number of Experiments)) x (Max marks for each Practical))
- Self-learning Activities (SLA) includes Micro project / Assignment / other activities related to subject/course and it will be evaluated out of 25 Marks.
- A Summative (comprehensive) Assessment (SA-PR) of Practical will be performed as End Semester Examination (ESE). The SA-PR will be for 50 Marks with MSBTE guidelines at the end of semester. The schedule of MSBTE Practical ESE will be display on Notice board prior to examination.

- **References:**

1. Suggested Books for Reference:

Sr. No	Author	Title of the Book	Publisher
1.	E Balaguruswamy	Programming with JAVA	Mcgraw Hill Education (India) Private Limited, New Delhi .ISBN-13: 978-93-5134-320-2
2.	Schildt Herbert	Java Complete Reference	Mcgraw Hill Education, New Delhi. ISBN:9789339212094
3.	Holzner, Steven etal	Java 8 Programming Black Book	Dreamtech Press, New Delhi. ISBN: 978-93-5119-758-4
4.	Kathy Sierra, Bert Bates, Elisabeth Robson	OCA Java SE 8	Mcgraw Hill Education, New Delhi.

2. Learning Websites & Portals:

Sr. No	Website /Portal Link/URL	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.html	All content
4	https://www.programiz.com/java-programming/online-compiler	Online compiler for java
5	https://onecompiler.com/java	Online compiler for java
6	https://www.odcms.org/wp-content/uploads/2013/11/009.01-Arlow-JDBC-Tutorial-July-2005.pdf	Database Connectivity
7	https://infyspringboard.onwingspan.com/web/en/app/toc/lex_29959473947367270000_shared/overview	All content
8	https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_0138420095549112329730_shared/overview	All content
9	https://onlinecourses.nptel.ac.in/noc22_cs47/preview	All content
10	https://www.w3schools.com/java/java_intro.asp	Introduction to Java

3. URLs of referred YouTube Videos:

Sr. No	URL/YouTube Link	Topic/ Description
1	https://www.youtube.com/watch?v=eIrMbAQSU34	All content
2	https://www.youtube.com/watch?v=BGTx91t8q50	All content
3	https://www.youtube.com/watch?v=UmnCZ7-9yDY	All content
4	https://www.youtube.com/watch?v=cDd-eUtbm2k	All content
5	https://www.youtube.com/watch?v=MOQfTuOiBys	JDBC Connectivity
6	https://www.youtube.com/watch?v=Gj2YwR_71sE	Event Handling in Java
7	https://www.youtube.com/watch?v=3YoKVswJsKI	Basics of Network Programming
8	https://www.youtube.com/watch?v=BWjGQllkgT4	Basics of Network Programming

a.Tools to Use for Practical Teaching-Learning, Assessment and Evaluation:

- **MKCL ERA LMS:** LMS to share practical study material, notes, assignments with students. Teachers can create, distribute and teach the practical learning content as per the curriculum.
- **JDK (Java Development Kit):** A software development environment that helps creates Java-based applications and applets.

Mr.S.K.Mahajan
(Faculty Name & signature)

Prof. M.P.Bhosale
(HOD-Computer Tech. Dept.)

CC-

1. Lab File
2. JPR - 314317 Course File
3. Notice Board / ERP
4. Institute Website / CIAAN Coordinator
5. Progressive Assessment