Maharashtra State Board of Technical Education, Mumbai
TEACHING PLAN (TP-TH)/ Course Information Sheet (CIS)

K-1

Academic Year: 2025-26 **Date:** 13/12/2025
Institute Name: K. K. Wagh Polytechnic, Nashik **Institute Code:** 0078
Program and Code: Computer Technology (CM) **Course Code &. Abbr.:** 314317 (JPR)
Course Name: Java Programming (JPR) **Course Index:** CI403 **Learning Hrs:** 60
Class: SYCM-Win **Semester:** 4th **Scheme:** K **Name of Faculty:** Ms. R. K. Ushir

• Teaching-Learning & Assessment Scheme:

Course Title	Course Code / Abbr	Course Category	Learning Scheme							Assessment Scheme										Total Marks
			Actual Contact Hrs/ Week			SLH	NLH	Credits	TH Paper Duration (Hrs.)	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	Min	
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 Java Programming (JPR-314317), the Second Year students will be able to:

CO No.	TLO No.	Course Outcomes (COs) / Theory Learning Outcomes (TLOs)
CO403.1 (CO1)	**Basic Syntactical Constructs in Java**	
	TLO 1.1	Write programs to create classes and objects for the given problem.
	TLO 1.2	Describe characteristics of the given java token.
	TLO 1.3	Write program to evaluate given expressions.
	TLO 1.4	Write programs using relevant control structure to solve the given problem.
	TLO 1.5	Develop programs using vectors and wrapper classes for the given problem.
	TLO 1.6	Use constructors for the given programming problem.
CO403.2 (CO2)	**Inheritance, Interface and Packages**	
	TLO 2.1	Apply identified type of inheritance for the given programming problem.
	TLO 2.2	Differentiate between overloading and overriding with the help of examples.
	TLO 2.3	Develop program using interface.
	TLO 2.4	Create user defined package for the given problem.
CO403.3 (CO3)	**Exception Handling and Multithreading**	
	TLO 3.1	Distinguish the errors and exceptions with example.
	TLO 3.2	Develop program for handling the given exception.
	TLO 3.3	Create threads to run multiple processes in a program.
	TLO 3.4	Develop program using different thread life cycle methods
CO403.4 (CO4)	**Event handling using Abstract Window Tool kit (AWT) & Swings Components**	
	TLO 4.1	Write steps to develop Graphical User Interface (GUI) using AWT components with frame for the given problem.
	TLO 4.2	Develop program using menu and dialog boxes for the given problem.
	TLO 4.3	Write steps to develop Graphical user interface (GUI)using advanced swing components for the given problem.
	TLO 4.4	Use delegation event model to develop event driven program for the given problem.
	TLO 4.5	Use relevant AWT/Swing component(s) to handle the given event.
CO403.5 (CO5)	**Basics of Network Programming**	
	TLO 5.1	Describe the concepts of sockets in java.
	TLO 5.2	Use networking classes to retrieve host details.

	TLO 5.3	Develop program for Client/Server communication through TCP/IP Server sockets for the given problem.
CO403.6 (CO6)		**Interacting with Database**
	TLO 6.1	Choose relevant database connectivity methods.
	TLO 6.2	Describe two tier and three tier architecture of JDBC.
	TLO 6.3	Choose relevant type of JDBC driver for the specified environment.
	TLO 6.4	Elaborate steps with example to establish connectivity with the specified database.

❖ Teaching Plan:

Unit No. (Allotted Hrs. & Marks)	COs & TLOs	Unit Title with Topic Details/Contents	Planned Dates (From-To & No. of Lectures)	Teaching Method/ Media	Sign and Remark for Completion
01 (08) (12)	CO1 TLO- 1.1 1.2 1.3 1.4 1.5 1.6	**Unit - I Basic Syntactical Constructs in Java** 1.1Java features and the Java programming environment. 1.2Defining a class, creating object, accessing class members. 1.3Java tokens and data types, symbolic constant, scope of variable, typecasting, and different types of operators and expressions, decision making and looping statements.	16/12/2025 To 19/12/2025 (04)	Chalk-Board, LCD+PPTs, Notepad, Notepad++ J.D.K 1.8	
		1.4Arrays, strings, string buffer classes, vectors, wrapper classes. 1.5Constructors and methods, types of constructors, method and constructor overloading, nesting of methods, command line arguments, garbage collection, visibility control: public, private, protected, default, private protected.	23/12/2025 To 26/12/2025 (04)		
02. (10) (12)	CO2 TLO- 2.1 2.2 2.3 2.4	**Unit - II Inheritance, Interface and Packages** 2.1Inheritance: concept of inheritance, types of Inheritance: single inheritance, multilevel inheritance, hierarchical inheritance, method overriding, final variables, final methods, use of super, abstract methods and classes.	30/12/2025 To 08/01/2026 (06)	Chalk-Board, LCD+PPTs, Notepad, Notepad++ J.D.K 1.8	
		2.2 Interfaces: Define interface, implementing interface, accessing interface variables and methods, extending interfaces.	09/01/2026 To 09/01/2026 (02)		
		2.3 Package: Define package, types of package, naming and creating package, accessing package, import statement, static import, adding class and interfaces to a package	13/01/2026 To 15/01/2026 (02)		
03. (12) (12)	CO3 TLO- 3.1 3.2	**Unit - III Exception Handling and Multithreading** 3.1 Errors and Exception: Types of errors and exceptions, try and catch statement, throws and finally statement, built-in exceptions, throwing our own exception.	16/01/2026 To 23/01/2026 (06)	Chalk-Board, LCD+PPTs, Notepad, Notepad++ J.D.K 1.8	

		3.2 Multithreaded programming: creating a thread: By extending to thread class and by implementing runnable Interface, Life cycle of thread: Thread methods, thread exceptions, thread priority and methods, synchronization.	27/01/2026 To 05/02/2026 (06)		
04. (14) (16)	CO4 TLO- 4.1 4.2 4.3 4.4 4.5	**Unit - IV Event handling using Abstract Window Toolkit (AWT) & Swings Components** 4.1 Component, container, window, frame, panel, use of AWT controls: labels, buttons, checkbox, checkbox group, textfield, textarea.	06/02/2026 To 06/02/2026 (02)	Chalk-Board, LCD+PPTs, Notepad, Notepad++ J.D.K 1.8	
		4.2 Use of layout managers: flowLayout, borderLayout, gridLayout, gridBagLayout, menu bars, menus, file dialog. 4.3 Introduction to swing: Swing features, difference between AWT and Swing.	10/02/2026 To 13/02/2026 (04)		
		4.4 Swing components: Icons and Labels, Textfield, Combobox, Button, Checkbox, RadioButton. 4.5 Advanced Swing Components: Tabbed Panes, Scroll Panes, Trees, Tables, Progressbar, tool tips.	17/02/2026 To 20/02/2026 (04)		
		4.6 Introduction to Event Handling: The delegation Event Model: Event sources, Event listeners. 4.7 Event classes: The action event class, the Item event class, the Key event class, the mouse event class, text event. 4.8 Event listener interfaces: ActionListener, ItemListener, KeyListener, MouseListener, MouseMotion and TextListener.	24/02/2026 To 27/02/2026 (04)		
05. (08) (10)	CO5 TLO- 5.1 5.2 5.3	**Unit-V Basics of Network Programming** 5.1 Socket Overview: Client/Server , reserved Sockets , proxy servers , Internet Addressing 5.2 Java and the Net: The networking classes and interfaces, InetAddress: Factory Methods, InstanceMethods.	03/03/2026 To 06/03/2026 (04)	Chalk-Board, LCD+PPTs, Notepad, Notepad++ J.D.K 1.8	
		5.3 TCP/IP Client and Server Sockets, datagram sockets, datagram packets 5.4 The URL Class, URLConnection class	10/03/2026 To 13/03/2026 (04)		
06. (08) (08)	CO6 TLO- 6.1 6.2 6.3 6.4	**Unit - VI Interacting with Database** 6.1 Introduction to JDBC, ODBC 6.2 JDBC architecture: Two tier and three tier models	17/03/2026 To 20/03/2026 (04)	Chalk-Board, LCD+PPTs, Notepad, Notepad++ J.D.K 1.8	
		6.3 Types of JDBC drivers, Class ,Driver Manager class, Connection interface, Statement interface, Prepared Statement interface, ResultSet Interface	24/03/2026 To 27/03/2026 (04)		

• Chapter wise CO-PO Mapping:

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes PSOs	
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PSO-1	PSO-2
CO1	1	-	2	1	-	-	1	1	-
CO2	1	1	2	1	-	1	1	1	1
CO3	1	2	1	1	-	-	1	1	1
CO4	1	2	2	1	-	1	1	1	-
CO5	-	2	2	1	1	1	1	1	1

Legends: - High:03, Medium:02, Low:01, --: No Mapping

• POs and PSOs :

Sr. No.	Programme Outcomes (POs)	Programme Specific Outcomes (PSOs)
1.	**PO-1** Basic and Discipline Specific Knowledge	**PSO1:** Apply acquired skills of programming, networking, hardware & database for computer based problem solving and software development.
2.	**PO-2** Problem Analysis	
3.	**PO-3** Design/ Development of Solution	
4.	**PO-4** Engineering Tools	
5.	**PO-5** Engineering Practices for Society, Sustainability and Environment	**PSO2:** Pursue higher studies in the field of Computer Science / Computer Engineering / Information Technology.
6.	**PO-6** Project Management	
7.	**PO-7** Life Long Learning	

• Weightage to Learning Efforts & Assessment Purpose (Specification Table):

Unit No.	Unit Title	Aligned COs	Learning Hours	R-Level	U-Level	A-Level	Total Marks
1	Fundamentals of Data Communication and Computer Network	CO1	10	04	08	04	16
2	Transmission Media And Switching	CO2	10	04	04	06	14
3	Error Detection and Correction	CO3	08	04	04	06	14
4	Network Communication Models	CO4	12	04	06	08	18
5	Network Topologies And Network	CO5	05	02	02	04	08
		Total :	**45**	**18**	**24**	**28**	**70**

 # Learning Levels with reference to Bloom's Taxonomy: R-Level: Remember, U-Level: Understand, A-Level: Apply

• Formative & Summative Assessment Criteria:
▪ Theory Assessment:
a) Theory Formative assessment (TH-FA):
▪ Two 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 out of 30 marks.

b) Summative Assessment (TH- SA):
▪ The Final comprehensive end semester theory written assessment examination will be conducted by MSBTE for 70 marks. Question Paper setting and Assessment of answer papers is performed by MSBTE at the state level.
▪ Final Theory Score out of 100 Marks will be derived as the total score as below:
   TH-SA [out of 70] + TH- FA [Test Avg score out of 30] = 100 Marks

- **Practical Assessment:**
  1. 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.
  2. Final Term Work (FA-PR) of 50 marks is calculated based on scores in Formative Assessment for all practicals/experiments as:
     Term Work Marks = ((Sum of Total Marks Scored in FA * 50) / (Total of Number of Experiments)) *100
  3. Self-learning Activities (SLA) includes Micro project / Assignment / other activities related to subject/course and it will be evaluated out of 25 Marks.
  4. 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
5.	Comer Douglas E.	Internetworking With TCP/IP Principles, Protocols, And Architecture - Volume I	PHI Learning Pvt. Ltd. ISBN-10:9332550107 ISBN-13:978-9332550100

2. Learning Websites URLs & 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.odbms.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:

	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=BWjGQlIkgT4	Basics of Network Programming

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

- **Google Classroom –** It will be used to/for:
  - o Organized Sharing of the Learning material such as PPTs, eNotes, Question Banks, Sample Solutions with students by class.
  - o Conduction of the MCQ Tests and its evaluation.
  - o Online sharing of Assignments and the Assessment of Assignments.
  - o Monitor the students response and progress.
- **MKCL ERA LMS: –** The use of MKCL ERA LMS is/for:
  - o Sharing by the Class, the Learning material such as PPTs, eNotes, Video Links by the Units
  - o Sharing of Question Banks, Sample Solutions with students by class.
  - o Conduct the Unit wise Quiz and perform evaluation of students.
  - o Online Conduction of the Tests/Assignments and its assessment.
  - o Using this detailed student's reports about his/her performance can be made available.

Ms. R. K. Ushir   Prof. M. P. Bhosale
(Faculty Name & signature)   **(HOD-CM)**

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