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.:** 314004 (PWP)
Course Name: Python Programming (PWP) **Course Index:** CI404 Learning **Hrs.:** 32
Class: SYCM-Mac **Semester:** 4th **Scheme:** K **Name of Faculty:** Mr. G. R. Shinde

• Teaching-Learning & Assessment Scheme:

Course Title	Course Code / Abbr	Course Category	Learning Scheme					Credits	TH Paper Duration (Hrs.)	Assessment Scheme										
			Actual Contact Hrs/ Week			SLH	NLH			Theory				Based on LL & TSL Practical				Based on SL		Total Marks
			CL	TL	LL					FA TH	SA TH	Total		FA-PR		SA-PR		SLA		
										Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
Python Programming	PWP 314004	PWP	2	-	4	-	6	3	-	-	-	-	-	50	20	50#	20	-	-	100

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 Python Programming (PWP-314004), the Second Year students will be able to:

CO No.	TLO No.	Course Outcomes (COs) / Theory Learning Outcomes (TLOs)
CO404.1 (CO1)	**Analyze the functioning of Data Communication and Computer Network**	
	TLO 1.1	Explain given feature of python.
	TLO 1.2	Write python program to perform basic input output operations.
	TLO 1.3	Write python program to solve given expression
	TLO 1.4	Implement given decision making statements and looping statements in python
CO404.2 (CO2)	**Select relevant Transmission Media and Switching Techniques as per need.**	
	TLO 2.1	Write python program to manipulate lists.
	TLO 2.2	Write python program to manipulate tuples.
	TLO 2.3	Write python program to manipulate sets
	TLO 2.4	Write python program to manipulate dictionaries.
CO404.3 (CO3)	**Analyze the Transmission Errors with respect to IEEE standards**	
	TLO 3.1	Write relevant user defined functions for the given problem.
	TLO 3.2	Write relevant user defined module for the given problem.
	TLO 3.3	Write packages for the given problem.
CO404.4 (CO4)	**Configure different TCP/IP services**	
	TLO 4.1	Write python program using classes and objects to
	TLO 4.2	Implement python program using different types of constructors.
	TLO 4.3	Write program to demonstrate polymorphism.
	TLO 4.4	Write python code using data abstraction for given problem.
	TLO 4.5	Apply inheritance for the given problem.
CO404.5 (CO5)	**Implement relevant Network Topology using Networking Devices**	
	TLO 5.1	Write python program to use pandas package for the given problem.
	TLO 5.2	Create GUI application using tkinter package for the given problem.
	TLO 5.3	Create a python application to connect with database.

❖ Teaching Plan:

Unit No. (Allotted Hrs.)	COs & TLOs	Unit Title with Topic Details/Contents	Planned Dates (From-To & No. of Lectures)	Actual Execution (From-To & No. of Lectures)	Teaching Method/ Media	Sign and Remark for Completion
01 (06)	CO1 TLO-1.1, 1.2, 1.3. 1.4	**Unit - I Introduction to Python and Control flow statements** 1..0 Overview of the Course, Prerequisites, Scope, Skills, Career & Opportunities, MNCs	16/12/2025 to 17/12/2025 (02)		Chalk-Board, LCD+PPTs,	
		1.1 Protocol Introduction: Features, History and Applications of Python, Python IDE's 1.2 Bandwidth, Python building blocks: Indentation, Identifiers, Variable, Comments, Keywords	23/12/2025 to 24/12/2025 (02)		Chalk + Blackboard, PPT, Demo on Python IDLE	
		1.3 Basic input output operations: input(), print() 1.4 Operators: Arithmetic, Relational, Assignment, Logical, Bitwise, Membership and Identity operator	30/12/2025 (01)		Chalk + Blackboard, PPT	
		1.5 Control flow statements: Conditional statements (if, if-else, if-elif-else, nested if), 1.6Loops in python (while, for, nested loops), 1.7 Loop manipulation statements (continue, pass, break, else)	31/12/2025 (01)		Chalk + Blackboard, PPT, Demo on Python IDLE	
02. (08)	CO2 TLO-2.1 2.2 2.3 2.4	**Unit-2 Data Structures in Python** 2.1 List: a) Defining lists, accessing values from list, deleting list values, updating lists b)Basic list operations b) Built-in list functions/methods	06/01/2026 to 07/01/2026 (02)		Chalk + Blackboard, PPT, Demo on Python IDLE , MKCL ERA	
		2.2 Tuple: a) Defining Tuple, accessing values from Tuple b) Basic Tuple operations c) Built in Tuple functions/methods	13/01/2026 to 14/01/2026 (02)		Chalk + Blackboard, PPT, Demo on Python IDLE , MKCL ERA	
		2.3 Set: a) Defining Sets, accessing values from set, deleting set values b) Basic set operations c) Built in set functions/methods	20/01/2026 to 21/01/2026 (02)		Chalk + Blackboard, PPT, Demo on Python IDLE , MKCL ERA	
		2.4 Dictionary: a) Defining Dictionary, accessing values from Dictionary, deleting Dictionary values, updating Dictionary b) Basic Dictionary operations c)Built in Dictionary functions/methods	27/01/2026 to 28/01/2026 (02)		Chalk + Blackboard, PPT, Demo on Python IDLE , MKCL ERA	
03. (06)	CO3 TLO-3.1 3.2 3.3	**Unit3 Functions, Modules and Packages in Python** 3.1 Functions: Defining function, Calling function, Function arguments, Return statement, Scope of Variable, Lambda functions	21/02/2026 to 24/02/2026 (02)		Chalk + Blackboard, PPT, Demo on Python IDLE , MKCL ERA	

		3.2 Modules: Create user defined Module, Importing a module, Using python built-in modules, Namespace and scoping	03/02/2026 to 04/02/2026 (02)		Chalk + Blackboard, PPT, Demo on Python IDLE , MKCL ERA	
		3.3 Python Packages: Create user defined Package, Importing a Package, Using python built-in Packages, Installing packages using PIP	10/02/2026 to 11/02/2026 (02)		Chalk + Blackboard, PPT, Demo on Python IDLE , MKCL ERA	
04. (04)	CO4TLO-4.1 4.2 4.3 4.4 4.5	**Unit 4 Object Oriented Programming in Python** 4.1 Object oriented Concepts: Creating class, Creating object 4.2 Constructors in python (Parameterized & Non- Parameterized), the self-parameter	17/02/2026 to 18/02/2026 (02)		Chalk + Blackboard, PPT, Demo on Python IDLE , MKCL ERA	
		4.3 Polymorphism: Method overloading and Overriding 4.4 Data Hiding / Abstraction	24/02/2026		Chalk + Blackboard, PPT, Demo on Python IDLE , MKCL ERA	
		4.5 Inheritance: Single Inheritance, Multiple Inheritance, Multilevel Inheritance	25/02/2026		Chalk + Blackboard, PPT, Demo on Python IDLE , MKCL ERA	
05. (06)	CO5TLO-5.1 5.2 5.3	**Unit5 Introduction to Built-in Packages in Python** 5.1 Pandas: Use of pandas, pandas series, pandas DataFrames, pandas Read CSV	04/03/2026 to 10/03/2026 (02)		Chalk + Blackboard, PPT, Demo on Python IDLE , MKCL ERA	
		5.2 Creating GUI using tkinter: Introduction to tkinter, Widgets (Entry, Label, Button, RadioButton, Checkbutton), 5.3 Creating a simple GUI application	17/03/2026 to 18/03/2026 (02)		Chalk + Blackboard, PPT, Demo on Python IDLE , MKCL ERA,	
		5.4 Connecting to Database using MySQL: Installing mysql-connector, cursor() object, execute() method, fetchall() method, 5.4 Repeater, Bridge 5.5 Creating simple program to connect database	25/03/2026 to 01/04/2026 (02)		Chalk + Blackboard, PPT, Demo on Python IDLE , MKCL ERA	
		Total	**30 Hrs.**			

- **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	2	1	1	1	-	-	-		
CO2	2	1	1	1	-	-	-		
CO3	3	2	2	2	-	-	-		
CO4	3	3	3	2	-	-	1		
CO5	3	2	3	3	-	-	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. **PSO2:** Pursue higher studies in the field of Computer Science / Computer Engineering / Information Technology.
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	
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	Introduction to Python and Control flow statements	CO1	06	00	00	00	00
2	Data Structures in Python	CO2	08	00	00	00	00
3	Functions, Modules and Packages in	CO3	06	00	00	00	00
4	Object Oriented Programming in	CO4	04	00	00	00	00
5	Introduction to Built-in Packages in	CO5	06	00	00	00	00
		Total :	**30**	**00**	**00**	**00**	**00**

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

- **Formative & Summative Assessment Criteria:**

  - **Practical Assessment:**

1. **Formative Assessment (FA-PR)** of each practical/experiment will be performed progressively for 50 marks. Each practical will be assessed considering 1) 60% weightage is to process 2) 40% weightage to product. 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. **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.	R. Nageswara Rao	Core Python Programming	Dreamtech Press, ISBN-13:9789390457151
2.	Mark Lutz	Learning Python	O'Reilly Media, Inc, ISBN: 9781449355739
3.	David Amos, Dan Bader, Joanna Jablonski, Fletcher Heisler	Python Basics	Real Python, ISBN-13: 9781775093329
4.	Dr. Jeeva Jose	Taming Python by Programming	Khanna Book Publishing CO(P) LTD, New Delhi, ISBN: 9789386173348
5.	Rupesh Nasre	Python Programming	AICTE, ISBN 9788195986354 [Online available on AICTE e-Kumbh]

2. Learning Websites URLs & Portals:

Sr. No	Website /Portal Link/URL	Description
1	https://ekumbh.aicte-india.org/allbook.php	Python Programming
2	https://python-iitk.vlabs.ac.in/	Python Programming Lab
3	https://spoken-tutorial.org/watch/Python+3.4.3/Input-output/English/	Introduction to Python and control flow statements, Data Structures in Python, Function and module
4	https://onlinecourses.nptel.ac.in/noc19_cs41/preview	Python Programming Course
5	https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_013094439793500160 2592_shared/overview	Python for Beginners
6	https://www.geeksforgeeks.org/python-gui-tkinter/	Python GUI Programming
7	https://www.w3schools.com/python/python_mysql_getstarted.asp	Python MySQL Database Connectivity
8	https://www.tutorialspoint.com/python_pandas/index.htm	Python pandas package
9	https://www.programiz.com/python-programming/object-oriented -programming	OOP using Python

3. URLs of referred YouTube Videos:

Sr. No	URL/YouTube Link	Topic/ Description
1	https://youtu.be/t2_Q2BRzeEE?si=vjiludUWTR5BVoSK	Variables & Data Types
2	https://youtu.be/lIId8IDP6TU?si=mKNMEfsowAdOAsIA	Strings & Conditional Statements
3	https://youtu.be/gOMW_n2-2Mw?si=s-vV9mJBxwldNdLx	Python lists, sets, and tuples
4	https://youtu.be/f2RATcdPcrE?si=7Fdaq-qJhvlf8eq-	Introduction to Lists in Python
5	https://youtu.be/fNRUxURBgtk?si=-ZpOoi2ACX12QHAI	Python Programming Tutorial - if else Statements
6	https://youtu.be/te6OVQw3ylk?si=7xXZc1j_aUHGfGJS	Python Programming Tutorial - for loop
7	https://youtu.be/qD610d5i1Qo?si=lXjllMSlea0PYH_m	Python Programming Tutorial - While loop
8	https://youtu.be/EPLz5pKl_jU?si=6E-8xyxJAFz-qBbk	Object Oriented Programming Python
9	https://youtu.be/L6BoHn8NdX4?si=y2VLDGB1F6ufqy3F	Modules in Python
10	https://youtu.be/Sx1Hjr67xO0?si=Gg-A7CPiM80syufy	File Handling in Python

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

- **Google Classroom –** It will be used to/for:
  - Organized Sharing of the Learning material such as PPTs, eNotes, Question Banks, Sample Solutions with students by class.
  - Conduction of the MCQ Tests and its evaluation.
  - Online sharing of Assignments and the Assessment of Assignments.
  - Monitor the students response and progress.

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

Mr. G. R. Shinde
(Faculty Name & signature)

Prof. M. P. Bhosale
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