

TEACHING PLAN (TP)

Academic Year: 2026-27 (ODD)

Institute Code and Name: 0078- K. K. Wagh Polytechnic, Nashik**Programme and Code:** Information Technology (IF)**Course and Code:** Data Analytics (DAN)**Scheme:** K**Allocated Hrs.** 40**CLASS:** TYIF (CRAY)**Semester:** Fifth**Course Index:** 506**Course Code:** 315326**Name of Faculty:** Ms. M. S. Karande**COURSE LEVEL LEARNING OUTCOMES (COS)**

- CO1 - Elaborate the fundamental concepts of Data Analytics.
- CO2 - Apply appropriate statistical techniques to analyze and interpret complex Datasets.
- CO3 - Analyze numerical data by creating pivot table.
- CO4 - Represent data in terms of various types of charts.
- CO5 - Visualize the data using a Python library.

TEACHING-LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Abbr	Course Category	Learning Scheme						Credits	Paper Duration	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	Min	Max	Min	Max	Min	Max	Min		
315326	DATA ANALYTICS	DAN	DSE	4	-	2	-	6	2	3	30	70	100	40	25	10	25#	20	-	-	150	

Total IKS Hrs. for Sem.: 0 Hrs.

Abbreviations: CL- Classroom Learning, TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hour 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

SUGGESTED COS - POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes (PSOs)	
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2
CO1	2	2	1	-	2	-	2	2	2
CO2	2	2	2	2	1	1	1	3	3
CO3	2	2	3	2	1	1	1	3	3
CO4	2	2	3	1	1	2	1	3	3
CO5	1	2	2	2	2	2	2	3	3

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

Maharashtra State Board of Technical Education, Mumbai

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Chap No. (Allotted Hrs.)	CO Mention only Number	TLO Mention only Number	Unit Name and Learning Content Title/ Details	No. of Lecture	Plan (From-To)	Actual Execution (From-To)	Teaching method/ Media	Remark
1 (10)	CO-1	TLO 1.1, TLO 1.2, TLO 1.3, TLO 1.4, TLO 1.5	Unit - I Introduction to Data Analytics 1.1 Data Analytics: An Overview, Importance of Data Analytics	1	10/08/2026		Chalk, Board, PPT+ LCD, Videos, Google Classroom, MKCL ERA	
			** Types of Data Jobs					
			1.2 Types of Data Analytics: Descriptive Analysis, Diagnostic Analysis, Predictive Analysis, Prescriptive Analysis, Visual Analytics	1	11/08/2026			
			1.3 Life cycle of Data Analytics, Quality and Quantity of data, Measurement	2	12/08/2026 to 14/08/2026			
			1.4 Data Types, Measure of central tendency, Measures of dispersion	2	17/08/2026 to 18/08/2026			
			1.5 Sampling Funnel, Central Limit Theorem, Confidence Interval, Sampling Variation	2	19/08/2026 to 21/08/2026			
2(8)	CO-2	TLO 2.1, TLO 2.2, TLO 2.3, TLO 2.4	Unit - II Statistical Analysis 2.1 Graphical techniques, box plot, skewness and kurtosis, Descriptive Stats	1	23/09/2026		Chalk, Board, PPT+ LCD, Videos, Google Classroom, MKCL ERA	
			2.2 Correlation and Regression, Data Cleaning	1	25/09/2026			
			2.3 Imputation Techniques	1	28/09/2026			
			2.4 Anova and Chi Square	1	29/09/2026			
			2.5 Scatter Diagram	1	30/09/2026			

**** Content Beyond Syllabus**

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2(8)	CO-2	TLO 2.5, TLO 2.6, TLO 2.7, TLO 2.8	2.6 Estimation and Hypothesis Testing	1	05/10/2026		Chalk, Board,	
			2.7 Sampling Distributions, Counting	1	06/10/2026		PPT + LCD, Videos, Google	
			2.8 Probability, Probability Distributions	2	07/10/2026 To 12/10/2026		Classroom, MKCL ERA	
3(8)	CO-3	TLO 3.1, TLO 3.2, TLO 3.3, TLO 3.4, TLO 3.5	Unit - III Data Analytics with Excel 3.1 Excel Dashboard: Tables and Data Grids, Dynamic Filters and Controls, Trend Analysis and Forecasting	1	24/08/2026		Chalk, Board, PPT+ LCD, Videos, Google Classroom, MKCL ERA	
			3.2 Pivot Tables: Creating a Pivot Table Specifying Pivot Table Data	1	25/08/2026			
			3.3 Changing a Pivot Tables, Calculation Filtering and Sorting a Pivot Table	1	28/08/2026			
			3.4 Creating a Pivot Chart, Grouping Items	1	01/09/2026			
			3.5 Updating a Pivot Table, formatting a Pivot Table using Slicers	1	02/09/2026			
4(8)	CO-4	TLO 4.1, TLO 4.2	Unit - IV Data Visualization 4.1 Creating a Simple Chart, Charting Non-Adjacent Cells	1	04/09/2026		Chalk, Board, PPT+ LCD, Videos, Google Classroom, MKCL ERA	
			4.2 Creating a Chart Using the Chart Wizard, Modifying Charts, Moving an Embedded Chart, Sizing an Embedded Chart	1	07/09/2026			

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4(8)	CO-4	TLO 4.3, TLO 4.4, TLO 4.5	4.3 Changing the Chart Type, Changing the Way Data is Displayed, Moving the Legend	1	08/09/2026		Chalk, Board, PPT+ LCD, Videos, Google Classroom, MKCL ERA	
			4.4 Formatting Charts, Adding Chart Items, Formatting All Text, Formatting and Aligning Numbers, Formatting the Plot Area, Formatting Data Markers	1	09/09/2026			
			4.5 Pie Charts, Creating a Pie Chart Moving the Pie Chart to its Own Sheet Adding Data Labels, Exploding a Slice of a Pie Chart	2	11/09/2026 to 12/09/2026			
5(6)	CO-5	TLO 5.1, TLO 5.2, TLO 5.3, TLO 5.4,	Unit - V Data Visualization using Python	1	15/09/2026		Chalk, Board, PPT+ LCD, Videos, Google Classroom, MKCL ERA	
			5.1 Overview of Matplotlib and its role in data					
			5.2 Basic plotting with Matplotlib, Line plot, Scatter plots, Bar charts, Histograms, adding titles, labels, and legends to plots	2	16/09/2026 to 18/09/2026			
			5.3 Changing figure size and aspect ratio, Customizing axes (limits, ticks, and labels)	1	19/09/2026			
			5.4 Exporting and Saving Visualizations: Saving plots in different formats (PNG, PDF, SVG), Adjusting the resolution and quality of saved plots, creating interactive visualizations using Matplotlib widgets	2	21/08/2026 to 22/09/2026			

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ASSESSMENT METHODOLOGIES/TOOLS

Formative assessment (Assessment for Learning)

- Continuous assessment based on process and product related performance indicators.
- Each practical will be assessed considering 1) 60% weightage to process 2) 40% weightage to product.

Summative Assessment (Assessment of Learning)

- End semester examination, Lab performance, Viva voce

SUGGESTED LEARNING MATERIALS / BOOKS

Sr. No	Author	Title	Publisher
1	Jinjer Simon	Excel Data Analysis: Your visual blueprint for analyzing data, charts, and PivotTables	Wiley Publication Edition: 3rd ISBN: 978-0-470-59160-4
2	A. J. Smalley	Data Analysis with Excel	SAGE Publications Edition: 1st, 2007 ISBN 10: 0070139903 / ISBN 13: 9780070139909
3	Fabio Nelli	Python Data Analytics: With Pandas, NumPy, and Matplotlib	Apress Publication ISBN-13 :978-1484239124 ISBN-13978-1484247372
4	Jake VanderPlas	Python Data Science Handbook	Shroff/O'Reilly Publication ISBN-10-9355422555 ISBN-13-978-9355422552
5	Business Analytics with MindTap	Jeffrey D. Camm James J Cochran Michael J. Fry Jeffrey W. Ohlmann	Cengage Learning India Pvt. Ltd. Publication Edition:4th ISBN: 9789360533533

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LEARNING WEBSITES & PORTALS

Sr. No	Link / Portal	Description
1	https://spreadsheetpoint.com/excel/dashboard-in-excel/	Advance Excel
2	https://www.javatpoint.com/how-to-create-a-dashboard-in-excel	Excel Dashboard
3	https://www.simplilearn.com/tutorials/excel-tutorial/data-analysis-excel	Data Visualization
4	https://www.freecodecamp.org/news/introduction-to-data-vizualization-using-matplotlib/	Matplotlib in Python
5	https://archive.nptel.ac.in/courses/106/107/106107220/	Introduction to data analytics

Ms. M. S. Karande
(Name & Signature of Staff)

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