GUJARAT TECHNOLOGICAL UNIVERSITY
Syllabus for Bachelor of Vocation (B.Voc), 6th Semester
Branch: Software Development
Subject Name: Python for Data Science Lab
Subject Code: 21160206

Type of course: Core

Prerequisite: Basic Knowledge of basic concepts of python and Database management system.

Rationale:

Teaching and Examination Scheme:

Teaching Scheme				Examination Marks				Total Marks
L	T	P	C	Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
0	0	2	2	0	0	30	20	50

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment

Experiments to be covered based on the theory covered in class

Content:

Sr. No.	Content	Teaching Hrs.	% Weightage
1	Develop programs to understand the control structures of python.	4	10
2	Develop programs to learn different types of structures (list, dictionary, tuples) in python.	2	10
3	Develop programs to learn NumPy and Panda for Data Analysis.	2	10
4	Develop programs that create a Pandas Series from array, Lists and Dictionary.	4	10
5	Develop programs that Set up Python for Data Science.	2	10
6	Develop programs that perform Uploading and Streaming of Data using Pandas.	2	10
7	Develop programs that perform Sampling of Data using Pandas.	4	10
8	Develop programs that Handling Missing Data.	2	10
9	Develop programs that Work with Data Shaping.	4	10
10	Develop programs that Work with Data Visualization using Matplotlib	2	10
	Total	**28**	**100**

Reference Books:

1. Python for data science for dummies 2nd Edition, John Paul Mueller, Luca Massaron, Wiley
2. Programming through Python, M. T. Savaliya, R. K. Maurya, G. M. Magar, STAREDU Solutions

3. Pandas for everyone :Python Data Analysis, Daniel Y. Chen, Pearson
4. Introducing Data Science: Big Data, Machine Learning, and More, Using Python Tools, Davy Cielen, Arno D.B. Meysman, et al., Minning
5. Applied Data Science with Python and Jupyter: Use powerful industry-standard tools to unlock new, actionable insights from your data, , Packt
6. Data Analytics, Anil Maheshwari , McGrawHill
7. Data Science From Scratch: First Principles with Python, Joel Grus , SPD
8. Star Data Science Specialist, STAR CERTIFICATION

Course Outcomes:

Sr. No.	CO Statement	Marks % Weightage
CO-1	Apply various Python data structures to effectively manage various types of data.	25
CO-2	Explore various steps of data science pipeline with role of Python.	25
CO-3	Design applications applying various operations for data cleansing and transformation.	25
CO-4	Use various data visualization tools for effective interpretations and insights of data.	25

List of Open Source Software/learning website:
Students must refer to following sites to enhance their learning ability.
- www.anaconda.com
- www.python.org
- www.w3schools.com
- https://www.learnpython.org/