



GUJARAT TECHNOLOGICAL UNIVERSITY
Syllabus for Integrated MSc, 7th Semester
Branch: Information Technology
Subject Name: Python Programming-2
Subject Code: 1370503

Teaching and Examination Scheme

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE(E)	PA (M)	PA (I)	ESE(V)	
3	0	2	4	70	30	20	30	150

Content:

Sr. No.	Content	Teaching Hours	Module Weightage (%)
1.	<p>Working with files Files, opening and closing a file, working with text files containing strings, knowing whether a file exists or not, working with binary files, the „with“ statement, the seek() and tell() methods, random accessing of binary files, zipping and unzipping files, working with directories, running other programs from python program</p> <p>Regular Expressions REs and Python: Regular Expressions, Sequence Characters in Regular Expressions, Quantifiers in Regular Expressions, Special Characters in Regular Expressions, Using Regular Expressions on Files, Retrieving Information from a HTML File</p>	10	20
2.	<p>Threads in python Difference between process and thread, types of threads, benefits of threads, creating threads, single tasking and multitasking, thread synchronization, deadlock in threads, daemon threads</p> <p>Date and time in python: Date and time now, combining date and time, formatting dates and times, finding durations using “time delta”, comparing two dates, sorting dates, stopping execution temporarily, knowing the time taken by a program, calendar module</p>	10	20
3.	<p>Data Science and Data Visualization using Python Data Science Using Python: Data Frame (Creating Data Frame from an Excel Spreadsheet, Creating Data Frame from .csv Files, Creating Data Frame from a Python Dictionary, Creating Data from Python List of Tuples, Operations on Data Frames) Data Visualization: Bar Graph, Histogram, creating a Pie Chart, Creating Line Graph Plotting: Plotting using PyLab, Plotting mortgages and extended examples Plotting: Plotting using PyLab, Plotting mortgages and extended examples</p>	10	20



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4.	Python's Database Connectivity Verifying the MySQL dB Interface Installation, Working with MySQL Database, Using MySQL from Python, Retrieving All Rows from a Table, Inserting Rows into a Table, Deleting Rows from a Table, Updating Rows in a Table, Creating Database Tables through Python	10	20
5.	Data Wrangling: Wrangling Data: Playing with Scikit-learn, Understanding classes in Scikit-learn, Defining applications for data science, Performing the Hashing Trick, Using hash functions, Demonstrating the hashing trick, Working with deterministic selection, Considering Timing and Performance, Benchmarkin, with,timeit, Working with the memory profiler, Running in Parallel on Multiple Cores, Performing multicore parallelism, Demonstrating multiprocessing.	10	20

Reference Books:

1. John V Guttag. "Introduction to Computation and Programming Using Python", Prentice Hall of India
2. R. Nageswara Rao, "Core Python Programming", dreamtech
3. Wesley J. Chun. "Core Python Programming - Second Edition", Prentice Hall
4. Michael T. Goodrich, Roberto Tamassia, Michael H. Goldwasser, "Data Structures and Algorithms in Pyhon", Wiley
5. Kenneth A. Lambert, "Fundamentals of Python – First Programs", CENGAGE Publication
6. Luke Sneeringer, "Professional Python", Wrox

Course Outcome:

After learning the course, the students should be able to:

No.	CO statement
CO-1	Understand the concept of File processing and Regular Expression.
CO-2	Get the knowledge of Thread and Date & Time operations using Python.
CO-3	Use various Data Visualization tools for effective interpretation and insight of Data.
CO-4	To be able to understand the database connectivity in Python.
CO-5	Perform data Wrangling with Scikit-learn applying exploratory data analysis.