23CP301T					Advanced Python Programming					
Teaching Scheme					Examination Scheme					
L	T	P	C	Hrs/Week	Theory			Practical		Total Marks
					MS	ES	IA	LW	LE/Viva	
3	0	0	3	3	25	50	25	--	--	100

COURSE OBJECTIVES

- To develop skills in file handling and exception handling.
- To build applications for automating tasks.
- To build web scraping applications.
- To create applications for data analysis and visualization.

Unit 1. Mastering File Input/ Output with Python **10 Hrs.**

I/O operations: Reading and writing files using functions, Different modes for files, reading and writing files in different formats | Working with file objects: Different methods and attributes of file objects| Best practices for file handling: Error handling, buffering, encoding, handling exceptions in file, compressing and decompressing files using libraries; Working with directories and files: create, delete, move, and copy directories and files, and navigating the file system

Unit 2. Automating Tasks with Python **10Hrs.**

Automation with Python: Benefits of automating tasks with Python, Overview of the tools and libraries used for automation, Automating file manipulation tasks, Automated emails and adding attachments, Automating text processing tasks, Advanced automation techniques, Best practices for writing maintainable and scalable automation code

Unit 3. Web Scraping with Python **9 Hrs.**

Web scraping: Basics of web scraping, Python for web scraping, Different Python libraries for performing web scraping, Web scraping applications, Using bots to extract content and data from websites, Best practices for web scraping.

Unit 4. Data analytics and Visualization with Python **10 Hrs.**

Data analytics and its importance: Overview of Python for data analytics, Handling array operations with Numpy, Data Cleaning and Preparation, Performing statistical analysis using Python libraries, Data visualization

Max. 39 Hrs.

COURSE OUTCOMES

On completion of the course, student will be able to

CO 1: Study fundamental Python programming concepts.
CO 2: Understand file handling and exception handling in Python.
CO 3: Compose automated applications.
CO 4: Build web scraping applications and bots.
CO 5: Design Python programs for data analysis and data visualization.
CO 6: Create Python applications for real-world problems.

REFERENCE BOOKS

1. "Python Cookbook", By David Beazley and Brian K. Jones, O'Reilly.
2. "Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython" by Wes McKinney, O'Reilly Media.
3. “Automate the Boring Stuff with Python”, by Al Sweigart, No Starch Press.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

Max. Marks: 100 **Exam Duration: 3 Hrs**

Part A: 10 Questions of 2 marks each-No choice 20 Marks

Part B: 2 Questions from each unit with internal choice, each carrying 16 marks 80 Marks