Semester: II	
Programme : Multi-Disciplinary	
Course : PYTHON PROGRAMMING	
Paper code: M1CS230211P	**Credits: 2**
Hours/week : 3	
Category: Core/MDC/SEC/VAC : MDS	
Theory / Practical / Composite : Practical 3	
No of Modules : 1	

Course Overview: This course introduces the fundamentals of programming and problem solving using Python. Students learn to develop algorithms and flowcharts, understand Python syntax, operators, data types, and control structures, and work with lists, tuples, sets, and dictionaries. The course also covers functions, file handling, scope, modules, and basic libraries. Emphasis is placed on logical thinking and writing efficient Python programs to solve real-world problems.

Course Outcome:

1. **Recall** fundamental concepts of programming, algorithms, flowcharts, Python syntax, data types, operators, and basic libraries.
2. **Explain** the working of algorithms, flowcharts, control structures, functions, file handling, scope, and modules in Python.
3. **Develop** Python programs using operators, expressions, sequence data types, lists, tuples, sets, dictionaries, functions, and file processing to solve basic problems.
4. **Analyze** problem statements and design appropriate algorithms and flowcharts before implementing solutions in Python.
5. **Evaluate** different programming approaches and select appropriate data structures and logic for efficient problem solving.
6. **Design** and develop complete Python-based applications integrating functions, modules, file handling, and basic libraries.

Prerequisites: Nil

SYLLABUS

UNIT /Module	CONTENT	HOURS or NUMBER OF CLASSES	CO Mapping	COGNITIVE LEVEL
I.	Introduction to Programming; Algorithms and Flowcharts	**5**	CO1 CO2, CO4	K1 K2, K4
II.	Introduction to Python Operators, Expressions & Statements	**10**	CO1, CO2 CO2, CO3	K1, K2 K2, K3
III.	Sequence Data Types List, Tuple, Set, Dictionary, Arrays	**10**	CO2, CO3 CO3, CO5	K2, K3 K3, K5
IV.	Functions & Parameterized Functions Scope and Modules	**8**	CO3, CO6 CO2, CO3	K3, K6 K2, K3

V.	File Processing Basic Libraries in Python	**6**	CO3, CO6 CO3, CO5	K3, K6 K3, K5
Text Books				
1. Python: The Complete Reference by Martin C. Brown, McGraw Hill Education				
2. Head First Python by Paul Barry, O'Reilly				
Suggested readings				
1. A Byte of Python by C.H. Swaroop				
2. Python from the Very Beginning by John Whitington				
Web Resources				
1. The Joy of Computing with Python https://nptel.ac.in/courses/106106182				
Evaluation: End Semester Practical Exam				
Paper Structure for Theory Semester Exam Module : N/A				

Course outcomes (COs) and Cognitive Level Mapping

COs	CO Description	Cognitive levels
CO1	Recall basic programming concepts, algorithms, flowcharts, and Python syntax	Remember (K1)
CO2	Explain programming constructs, data types, operators, and control structures in Python	Understand (K2)
CO3	Apply Python statements, functions, and data structures to solve computational problems	Apply (K3)
CO4	Analyze problem statements and design suitable algorithms and flowcharts	Analyze (K4)
CO5	Evaluate different programming approaches and select appropriate data structures	Evaluate (K5)
CO6	Design and develop complete Python programs integrating functions, files, modules, and libraries	Create (K6)