Paper Name: PYTHON PROGRAMMING

1. **Learning Outcome:**

   At the end of the course, students will be able to

   - Understand the basic problem solving techniques using Python which helps in research and commercial application development.
   - After completing this course, students will know about fundamentals of Python Programming and Problem Solving.

2. **Prerequisite:** Basic programming concept
3. **Semester: V**
4. **Course Type: Compulsory**
5. **Course Level: 100-199**
6. **Theory Credit:** 3
7. **Practical Credit:** 1
8. **Number of required hours:**

   m) Theory: 45 hrs

   n) Practical: 30 hrs

   o) Non Contact: 5 hrs

9. **List of reference books**

   (a) Core Python Programming, R. Nageswara Rao, Dreamtech Press.

   (b) Python: The Complete Reference, Martin C. Brown, McGraw Hill Education.

   (c) http://docs.python.org/3/tutorial/index.html

10. **Detailed Syllabus**

Unit no.	Unit content	No.of classes
1	**Introduction to Python Programming** Introduction, Installation of Python Interpreter, Python Shell, Code Indentation, Identifiers and Keywords, Literals, Strings, Operators (Arithmetic, Relational, Logical, Assignment, Ternary, Bitwise, Increment and Decrement Operators), Input and output statements, Output Formatting.	7
2	**Control Statements and Functions** Branching, Looping, Conditional Statement, Exit Functions, Break, Continue, Pass, Defining Functions, Default Arguments. Scope of	7

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	Functions, Function Documentation, Lambda Functions & Map.	
3	**Python Data Structures** List (List, Nested List, List as Matrix), Tuple, Set, Dictionary.	5
4	**Exception Handing** Errors, Exception Handling with try, Multiple Exception Handling, Writing own Exception	5
5	**File Handling** Understanding read function, read(), readline() and readlines(), Understanding write functions, write() and writelines(), Programming using file operations, Reading config files, Writing log files in python	5
6	**OOP in Python** Creating Classes in Python, Instance Methods, Inheritance, Polymorphism, Exception Classes and Custom Exceptions	5
7	**Introduction to Libraries in Python** NumPy, Matplotlib, OpenCV, Tkinter	7
8	**Python SQL Database Access** Introduction to database driven program, Database Connection, Database Operations: INSERT, READ, UPDATE, DELETE, COMMIT AND ROLLBACK.	4

(b) Practical 30 hours

i.	Introduction to Python console, operators, input and output statements.	1 class
ii.	Python control statements and functions	3 classes
iii.	Data Structures in python	2 classes
iv.	Exception Handling	1 class
v.	File Handling	2 classes
vi.	Object Oriented Python programming	2 classes
vii.	Introduction to libraries (NumPy, Matplotlib, OpenCV)	1 class
viii.	Python SQL Database Connection and database operations	3 classes

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