Faculty of Engineering and Technology

Bachelor of Technology

Effective from Academic Year: 2019-20

Branch Name:	Computer Engineering / Information technology
Semester/Year:	Semester VII / Final Year
Subject Title:	Python Programming
Subject Code:	1ET1030702
Pre-requisite:	Fundamentals of OOP

Course Objective:

The objectives of this course are:

- To provide students with contemporary knowledge in PYTHON PROGRAMMING.
- To equip students with skills to explore real-world software development challenges with python programming.

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
				University Assessment		Institutional Assessment		
Lecture	Tutorial	Practical	Credit	Theory	Practical	Mid-term Evaluation	Continuous Assessment	Total
4	-	2	5	70	30	30	20	150

Subject Contents			
Sr. No	**Topic**	**Total Hours**	**Weight (%)**
1	**Introduction to Python:** The basic elements of python, Data types, Operators, Control Structures, Strings and Input, Iteration	4	8
2	**Lists and Functions**: Functions and scoping, List Operations , Recursion, Global variables, Modules, File I/O, In Built Functions and Parameters, Dictionary	4	10
3	**Testing, Debugging, Exceptions and Assertions:** Debugging, Handling Exceptions, Assertions	4	12
4	**Classes and Object-Oriented Programming:** Abstract Data Types and Classes, Inheritance, Encapsulation and Information Hiding	4	12
5	**Algorithms and Data structures:** Search Algorithms, Sorting Algorithms, Stack, Queue	4	12
6	**Python MySQL**: Environment Setup, Creating new databases, Create Table, CRUD Operations, Transactions	5	12
7	**Python - Network Programming**, **Multithreaded Programming**	4	12
8	**Graphics and GUI Programming**: Drawing using Turtle, Tkinter and Python, Other GUIs	6	12
9	**Security**: Encryption and Decryption , Classical Ciphers	4	10

Course Outcome:

At the end of the course the student will be able:

- To do testing and debugging of code written in Python
- To draw various kinds of plots using PyLab.
- To create socket applications in Python.
- To create GUI applications in Python.

List of References:

1. Introduction to Computation and Programming Using Python by John V Guttag (PHI)
2. Core Python Programming by R. Nageswara Rao, Dreamtech
3. Core Python Programming Second Edition by Wesley J. Chun. (PHI)
4. Professional Python by Luke Sneeringer, Wrox
5. A Practical Introduction to Python Programming by Brian Heinold

E-Resource / Web Links:

- https://www.python.org/
- https://docs.python.org/2/library/turtle.html
- https://scipy.github.io/old-wiki/pages/PyLab
- https://nptel.ac.in/courses/117106113/34

List of Experiments:

Note: The experiment list provided beneath is for reference only. The course teacher may change/formulate it as per his/her methodology and requirement.

1. Develop a Python Program to Add Two Numbers.
2. Develop a Python Program to find largest element in an array
3. Develop a Python program to print even numbers in a list
4. Develop a Python program to split and join a string
5. Develop a program to Sort Python Dictionaries by Key or Value
6. Develop a Python program to find the sum of all Items in the dictionary.
7. Develop a Python program to sort five integer values.
8. Develop a Python program to understand working of exception handling.
9. Develop a Python program to implement classical ciphers.
10. Learn to plot different types of graphs using PyPlot.
11. Develop python programs to learn GUI programming using Tkinter