Faculty of Engineering and Technology

Bachelor of Technology (Semester II/ First year)

In Effect from Academic Year 2026-27

Branch Name:	Computer Engineering / Information Technology / Information and Communication Technology/ Artificial Intelligence and Data Science / Artificial Intelligence and Machine Learning / Electronics and Communication Engineering
Program Code:	ET103 / ET105 / ET108 / ET107 / ET114 / ET116
Course Title:	Python Programming
Course Code:	2ET1000110T
Pre-requisite Course:	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 and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
				Theory (Marks)		Practical (Marks)		Total (Marks)
Lecture	Tutorial	Practical	Credit	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
3	-	-	3	60	40	-	-	100

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
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

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://nptel.ac.in/courses/117106113/34

LAB/Practical:

List of Experiments	Marks
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. Develop python programs to learn GUI programming using Tkinter.	**50**

Course Learning Outcomes (CLO):

Course Outcomes	Description	Bloom's Taxonomy Level
COL1	To do testing and debugging of code written in Python	Understanding (2) Applying (3)
COL2	To create socket applications in Python	Create (2), Evaluate (3)
COL3	To create GUI applications in Python	Analyze (2), Create (2), Evaluate (1)

Mapping of CLOs with POs & PSOs:

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)			
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CLO1	H		L						L				H			
CLO2	H	M	M		L	M		L	M				H	M	M	L
CLO3	H	M	H	L		M		L	M		L	L	H	H	H	M

H:High, M:Medium, L:Low