



RAICHUR UNIVERSITY, RAICHUR

**Under Graduate Curriculum for Degree of
Bachelor of Science (B.Sc) in**

ARTIFICIAL INTELLIGENCE

(I & II Semester)

**As per Revised NEP 2024
With Effect from the Academic year from
2024-25 and onwards**

SYLLABUS FRAMEWORK

Semester	Course Code	Title of the Paper
I	CC1	Python Programming
	Lab1	Python Programming Lab
II	CC2	Mathematical Foundations to Artificial Intelligence
	Lab2	Mathematical Foundations to Artificial Intelligence using Python Programming
III	CC3	Probability and Statistics
	Lab3	Probability and Statistics Lab using Python Programming
IV	CC4	Artificial Intelligence & Machine Learning
	Lab4	Artificial Intelligence & Machine Learning Lab using Python Programming
V	CC5	Neural Networks and Deep Learning
	Lab5	Neural Networks Lab using Python
	EL1	Digital Image Processing
	EL2	Data Mining
VI	CC6	Data Science
	Lab6	Data Science Lab/Project Work/Internship
	EL3	Natural Language Processing
	EL4	Augmented Reality & Virtual Reality

SEMESTER: I

Course Code:	Course Title: Python Programming
--------------	----------------------------------

Course Learning Objectives: This course covers the basic programming paradigms associated with Python.

Course Outcomes: On successful completion of the course, the students shall be able to

1. Understand Python Environment and its Data structures
2. Apply Programming logics using Control statements and functions
3. Build applications using python modules

Unit-I

Introduction to Python:

What is Python, History of Python, Features of Python, Python Identifiers, Keywords and Indentation, Comments and document interlude in Python Command line arguments, Getting User Input, Python Data Types, Python Core objects and Functions, Number and Maths, List, Iterators, Dictionaries and Sets, Input Output.

Unit-II

Python built in function: User defined functions, packages functions, Defining and calling Function, The anonymous Functions, Loops and statement, Modules & Packages

Unit-III

Python Object Oriented and Exceptions Handling:

Overview of OOP, Creating Classes and Objects, Accessing attributes, Built-In Class Attributes, Destroying Objects, Exception, Handling an exception, try....except...else, try-finally clause, Argument of an Exception, Python Standard Exceptions, Raising an exceptions, User-Defined Exceptions.

Unit-IV

Python For Data Analysis:

Introduction to numpy Creating arrays Using arrays and Scalars Indexing Arrays Array Transposition Universal Array Function Array Processing Array Input and Output, Pandas, Series in pandas, Index objects, Reindex, Drop Entry, Selecting Entries, Data Alignment, Rank and Sort, Summary Statics, Missing Data, Index Hierarchy.

Text Books :

1. Martin Brown, Python:The Complete Reference, McGraw Hill Publications,4th Edition March 2018.
2. Yashavant Kanetkar, Aditya Kanetkar, Let Us Python, BPB Publications ,4th Edition 2022.

References:

1. Zhang.Y ,An Introduction to Python and Computer Programming, Springer Publications,2016

Course Code:	Course Title:Python Programming Lab
Exam Marks: 40	Examination Duration: 03 Hours

List of Assignments

- 1) Maximum of three numbers in Python
- 2) Python Program for factorial of a number
- 3) Python Program for simple interest
- 4) Python program to check whether a number is Prime between range
- 5) Python program to swap two elements in a list
- 6) Python program to a list and print all even numbers in a list
- 7) Python program to add two Matrices
- 8) Python program to multiply two matrices
- 9) Python program to find GCD of two numbers using function
- 10) Python program to calculate area of room using class and objects
- 11) Python program to handle exceptions
- 12) Python program to demonstrate functions on numpy array
- 13) python program to demonstrate series in pandas
- 14) python program to demonstrate various functions on series in pandas
- 15) Python Program for HierarchyIndex