

Course code	Course name	Course Category	L-T-P	Credits
20PIT2210	Lab on Python Programming Language	PUC	0-0-2	1

Course Learning Objectives:

The objective of this course is to develop logical abilities of students using Python language as a vehicle. Students will be exposed to Python programming language with an emphasis on semantics and problem solving

1. Provide foundation for programming
2. Enable the students to analyze and efficiently solve the problems using Python Programming language

Course Content:

Details of the Experiments

Following is the list of problems expected to be solved using Python Programming. As this list represents example problems; the problems discussed and given to solve are not restricts only to this

Topic	Programs
Basic Programs and Operators	<p>Write a program to display "Welcome to Rajiv Gandhi University of Knowledge Technologies"</p> <p>Write a program to calculate simple interest and compound interest</p> <p>Write a program to calculate electricity-bill for a customer, where unit details are entered through the keyboard.</p> <p>Write a program to compute distance between two points taking input from the user</p> <p>Write a program add.py that takes 2 numbers as command line arguments and prints its sum.</p> <p>Python Program to find the average of three numbers</p> <p>Evaluate the given expression $(ax+b) / (ax-b)$</p> <p>Python program for swapping of a two numbers using third variable</p> <p>Python program for swapping of a two numbers without using third variable</p> <p>Python program that takes three coefficients (a, b, and c) of a Quadratic equation $(ax^2+bx+c=0)$ as input and compute all possible roots</p>
Control Flow	<p>Python Program to find largest value from three numbers</p> <p>Write a Program for checking whether the given number is a even number or not.</p> <p>Python Program to find smallest value from three numbers</p> <p>Python Program to Check Whether a Given Year is a Leap Year</p>

	<ul style="list-style-type: none"> Python program to check whether a number is Palindrome or not Using a for loop, write a program that prints out the decimal equivalents of $1/2$, $1/3$, $1/4$, \dots, $1/10$ Write a program using a for loop that loops over a sequence. What is sequence? Write a program using a while loop that asks the user for a number, and prints a countdown from that number to zero.
Data Structures	<ul style="list-style-type: none"> Python program to check whether a string is Palindrome or not Python program to create list with n elements and find the average Python program to store n elements into a list, find the Average of the list excluding zero elements Python program to create list with n elements and find the largest number without using built-in functions Python program to count the numbers of characters in the string and store them in a dictionary data structure. Python program to create dictionary with key as unique element from Tuple and value as factors of the element Python Program to print a dictionary where the keys are numbers between 1 and 15 (both included) and the values are factorial of keys. Python program to create dictionary with key as unique element from Tuple and value as factors of the element
Files	<ul style="list-style-type: none"> Python program to find the longest word from the file Write a program to print each line of a file in reverse order. Python Program to find to calculate digit sum of line by line number from file and store it into another file with number and its digit sum Write a program to compute the number of characters, words and lines in a file.
Functions	<ul style="list-style-type: none"> Python Program to define function with primedigitproduct() to find prime digits product of a given number Write a function ball_collide that takes two balls as parameters and computes if they are colliding. Your function should return a Boolean representing whether or not the balls are colliding. Hint: Represent a ball on a plane as a tuple of (x, y, r), r being the radius If (distance between two balls centers) \leq (sum of their radii) then (they are colliding) Find mean, median, mode for the given set of numbers in a list Write a function dup to find all duplicates in the list Write a function unique to find all the unique elements of a list. Write a function cumulative_product to compute cumulative product of a list of numbers. Write a function reverse to reverse a list. Without using the reverse function. Write function to compute gcd, lcm of two numbers

Web resources:

1. <https://www.geeksforgeeks.org/python-programming-examples/>

Course Outcome:

1. Practically student can understand all data types and operators with its precedence and conditional statements
2. Choose correct usage of conditional constructions and Loop constructions.
3. Applying string operations and string built in functions
4. Analyzing basic operations of List, Tuple and Dictionary
5. Able to write file programs using python programming
6. Able to use exception handling concepts in python programming

Assessment Method

Course Nature		Practical (Lab courses only)		
Assessment Tool	Experiments	Record	Viva-Voce/ Quiz/MCQ/Lab project	Total
Weightage (%)	25%	5%	10%	40%
End Semester Examination weightage (%)				60%
