



**Kadi Sarva Vishwavidyalaya**  
**Faculty of Engineering & Technology**  
**Fourth Year Bachelor of EC Engineering**  
(VIII<sup>th</sup> Sem Academic Year 2020)

**Subject Code:EC802-N**

**Subject Title:Python Programming**

**Course Objective:**

- The course is designed to provide Basic knowledge of Python.
- Python programming is intended for software engineers, system analysts, program managers and user support personnel who wish to learn the Python programming language.
- To teach how to take the statement of a problem and from this determine suitable logic for solving the problem; then be able to proceed to code that logic.
- To demonstrate how to test and prepare a real time application using python.

Teaching scheme				Total  Credit	EvaluationScheme					Total  Marks
L	T	P	Total		Theory		IE Marks	CIA Marks	Pract. Marks	
Hrs	Hrs	Hrs	Hrs		Hrs	Marks				
04	00	00	04	04	03	70	30	20	00	120

**Outline Of the Course:**

Sr. No	TitleoftheUnit	Minimum Hours
1	History and setup of python programming	06
2	Data, Expressions, Statements	10
3	Control Flow, Functions	12
4	Lists, Tuples, Dictionaries	12
5	Files, Modules, Packages	10
6	Introduction to GUI Programming	10
	<b>Total</b>	<b>60</b>

**Total hours (Theory): 60**

**Total hours (Lab):**

**Total hours:**



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**Detailed Syllabus**

Sr. No	Topic	Lecture Hours	Weight age(%)
1	<b>History and setup of python programming:</b> History of Python, Python Features, Local Environment Setup, Installing Python, Setting up PATH, Python Environment Variables	06	10
2	<b>Data, Expressions and Statements :</b> Python interpreter and interactive mode; values and types: int, float, boolean, string, and list; variables, expressions, statements, tuple assignment, precedence of operators, comments; modules and functions, function definition and use, flow of execution, parameters and arguments.	10	20
3	<b>Control Flow and Functions:</b> Conditionals: Boolean values and operators, conditional (if), alternative (if-else), chained conditional (if-elif-else); Iteration: state, while, for, break, continue, pass; Fruitful functions: return values, parameters, local and global scope, function composition, recursion; Strings: string slices, immutability, string functions and methods, string module; Lists as arrays.	12	20
4	<b>Lists, Tuples and Dictionaries:</b> Lists: list operations, list slices, list methods, list loop, mutability, aliasing, cloning lists, list parameters; Tuples: tuple assignment, tuple as return value; Dictionaries: operations and methods; advanced list processing – list comprehension.	12	20
5	<b>Files, Modules and Packages:</b> Files and exception: text files, reading and writing files, format operator; command line arguments, errors and exceptions, handling exceptions, modules, packages.	10	20
6	<b>Introduction to GUI Programming:</b> Introduction, Tkinter programming, Tkinter widgets	10	10
	<b>Total</b>	<b>60</b>	<b>100</b>

**Instructional Method and Pedagogy:**

- At the start of course, the course delivery pattern, prerequisite of the subject will be discussed.
- Lectures will be conducted with the aid of multi-media projector, black board, OHP etc.
- Attendance is compulsory in lecture and laboratory which carries 10 marks in overall evaluation.
- One internal exam will be conducted as a part of internal theory evaluation.
- Assignments based on the course content will be given to the students for each unit and will be evaluated at regular interval evaluation.
- Surprise tests/Quizzes/Seminar/tutorial will be conducted having a share of five marks in the overall internal evaluation.
- The course includes a laboratory, where students have an opportunity to build an appreciation for the concepts being taught in lectures.
- Experiments shall be performed in the laboratory related to course contents.



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**Learning Outcome:**

At the end of this course, the student would be able

- Develop algorithmic solutions to simple computational problems
- Read, write, execute by hand simple Python programs.
- Structure simple Python programs for solving problems.
- Decompose a Python program into functions.
- Represent compound data using Python lists, tuples, and dictionaries.
- Read and write data from/to files in Python Programs.

**TEXT BOOKS:**

1. Programming Python: Powerful Object-Oriented Programming Fourth Edition by Mark Lutz.
2. The Quick Python Book, Second Edition 2nd Edition by Vernon L. Ced.
3. Allen B. Downey, ``Think Python: How to Think Like a Computer Scientist'', 2nd edition, Updated for Python 3, Shroff/O'Reilly Publishers, 2016 (<http://greenteapress.com/wp/thinkpython/>).

**REFERENCE BOOKS:**

1. Python Essential Reference (4th Edition) 4th Edition by David Beazley.

**List of experiments**(Not limited to following. Subject teacher may modify the same):

No.	List of Experiments
1.	Introduction about jupyter notebook.
2.	Write a python code for arithmetic operations.
3.	Write a Python Program to Find the Square Root of given number.
4.	Write a Python program to check if a number is prime or not.
5.	Write a Python Program to Calculate the Area of a Triangle.
6.	Write a Python Program for simple and compound interest.
7.	Write a Python Program for Fibonacci numbers.
8.	Write a Python Program to Solve Quadratic Equation.
9.	Write a Python Program to Convert Celsius To Fahrenheit.
10.	Write a Python Program to Find the Largest Among Three Numbers.
11.	Write a Python Program to Convert Decimal to Binary, Octal and Hexadecimal.
12.	Write a Python Program to Make a Simple Calculator.
13.	Write a Python Program to Make Cross and Zero Game.