# VASAVI COLLEGE OF ENGINEERING(Autonomous)
### ACCREDITED BY NAAC WITH 'A++' GRADE
### IBRAHIMBAGH, HYDERABAD – 500 031

## Department of Computer Science & Engineering

## PROGRAMMING ESSENTIALS IN PYTHON
Stream - Artificial Intelligence & Machine Learning
### (OPEN ELECTIVE-I)
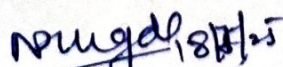(Common for CIVIL, ECE, EEE & MECH)

## SYLLABUS FOR B.E. III-SEMESTER

| L:T:P (Hrs./week): 2:0:0 | SEE Marks : 60 | Course Code :**U24OE320CS** |
|---|---|---|
| Credits : 2 | CIE Marks : 40 | Duration of SEE : 3 Hours |

| COURSE OBJECTIVES | COURSE OUTCOMES *On completion of the course, students will be able to* |
|---|---|
| 1 Acquire problem solving skills | 1 Design python programs using arithmetic expressions and decision making statements |
| 2 Learn programming and solve problems using Python language | 2 Design modular python programs using functions |
| | 3 Develop programs using strings and list |
| | 4 Develop programs using tuples and dictionaries |

### CO-PO and CO-PSO mapping

| CO | PO | | | | | | | | | | | | PSO | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO1 | 1 | | 1 | 1 | | | | | | | | | 1 | | 2 |
| CO2 | 1 | 1 | 1 | 1 | 2 | | | | | | | | 1 | | 2 |
| CO3 | 1 | 1 | 1 | 1 | 2 | | | | | | | | 2 | | 2 |
| CO4 | 1 | 1 | 1 | 1 | 2 | | | | | | | | 2 | | 2 |

**UNIT-I: Introduction to Python**: Variables, expressions and statements, order of operations
**Conditionals**: Modulus operators, Boolean expressions, logical operators, conditional execution, chained conditional, nested conditional

**Iteration:** while statement

**UNIT-II: Functions**: Function calls, Type conversion and coercion, mathematical functions, User-defined functions, parameters and arguments. Recursion

**UNIT-III: Strings:** string length, string traversal, string slices and string comparison with examples, strings are immutable, find function, string module
**List:** list values, accessing elements, list traversal, list length, list membership, list and for loop, list operations with examples

**UNIT-IV: Tuples**: Mutability, tuple assignment, tuple as return values
**Dictionaries:** dictionary operations, dictionary methods, aliasing and copying, counting letters using dictionaries

## Learning Resources:

1. Downey A, How to think like a Computer Scientist :Learning with Python, 1st Edition(2015), John Wiley
2. Lambert K.A, Fundamentals of Python–First Programs, 1st Edition ( 2015), Cengage Learning India
3. Perkovic L, Introduction to Computing using Python,2/e, (2015), John Wiley
4. Stewart Venit and Elizabeth Drake, Prelude to Programming: Concepts and Design, 6th Edition( 2015),Pearson India
5. Mark J Guzdial, Introduction to Computing and programming in Python, 3rd Edition(2013), Pearson India
6. Allen Downey, Think Python, 2nd Edition(2015),Shroff Publisher Orielly
7. http://nptel.ac.in/courses/117106113/34
8. https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-01sc-introduction-to-electrical-engineering-and-computer-science-i-spring-2011/python-tutorial/
9. www.scipy-lectures.org/intro/language/python_language.html

The break-up of CIE: Internal Tests + Assignments + Quizzes

| 1 | No. of Internal Tests | : | 2 | Max. Marks for each Internal Tests | : | 30 |
|---|---|---|---|---|---|---|
| 2 | No. of Assignments | : | 2 | Max. Marks for each Assignment | : | 5 |
| 3 | No. of Quizzes | : | 2 | Max. Marks for each Quiz Test | : | 5 |

Duration of Internal Tests : 90 Minutes