Prasad V. Potluri Siddhartha Institute of Technology, Kanuru, Vijayawada
Department of Freshman Engineering

Problem Solving & Programming with Python Lab

Course Code	20ES1152	**Year**	I	**Semester**	I
Course Category	Engineering Science	**Branch**	EEE	**Course Type**	Lab
Credits	1.5	**L-T-P**	0-0-3	**Prerequisites**	Nil
Continuous Internal Evaluation	15	**Semester End Evaluation**	35	**Total Marks**	50

	Course Outcomes
	Upon successful completion of the course, the student will be able to
CO1	Apply visual programming concepts, flowchart design techniques and Python programming constructs for solving problems. (L3)
CO2	Conduct experiments as an individual, or team member by using Scratch/Raptor tools and Python programming.
CO3	Develop an effective report based on various programs implemented.
CO4	Apply technical knowledge for a given problem and express with an effective oral communication. (L3)
CO5	Analyze outputs generated through Scratch/Raptor tools and Python programming (L4)

Contribution of Course Outcomes towards achievement of Program Outcomes &
Strength of correlations (3:High, 2: Medium, 1:Low)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3											2	2	2
CO2					3				3				2	2
CO3										3				
CO4	3									3				
CO5		3												

Syllabus

Expt. No.	Contents	Mapped CO
1	Apply Visual Programming Concepts using Scratch tool.	**CO1,CO2,CO3,CO4,CO5**
2	Solve various computational problems by designing flowcharts using Raptor tool.	**CO1,CO2,CO3,CO4,CO5**
3	Python programs on usage of operators.	**CO1,CO2,CO3,CO4,CO5**
4	Python Programs to demonstrate decision making and branching (Selection)	**CO1,CO2,CO3,CO4,CO5**
5	Python programs to demonstrate iterative statements.	**CO1,CO2,CO3,CO4,CO5**
6	Python programs to demonstrate functions	**CO1,CO2,CO3,CO4,CO5**
7	Python programs to perform operations on strings, regular expressions with built – in functions	**CO1,CO2,CO3,CO4,CO5**
8	Python programs to handle file operations.	**CO1,CO2,CO3,CO4,CO5**
9	Python programs to apply various data structures.	**CO1,CO2,CO3,CO4,CO5**

| 10 | Installing, importing and accessing numpy and pandas packages | **CO1,CO2,CO3,CO4,CO5** |

Learning Resources
Text Books
1. An introduction to programming and algorithmic reasoning using raptor, Weingart,   2. Dr. Troy, Brown, Dr. Wayne, 2018, CreateSpace (an Amazon.com Company)   3. Core Python Programming, R. Nageswara Rao, 2018, Dreamtech press.
Reference Books
1. Python Programming: Using Problem Solving Approach, Reema Thareja, 2017, Oxford University Press.   2. Programming with python, T R Padmanabhan, 2017, Springer.   3. Python for Data Analysis, Wes McKinney, 2012, O.Reilly.
e- Resources & other digital material
1. http://fusecontent.education.vic.gov.au/9f79537a-66fc-4070-a5ce-e3aa315888a1/scratchreferenceguide14.pdf   2. https://raptor.martincarlisle.com/   3. http://www.ict.ru.ac.za/Resources/cspw/thinkcspy3/thinkcspy3.pdf