PROBLEM SOLVING AND PROGRAMMING WITH PYTHON LAB

Course Code	20ES1152	Year	I	Semester	I
Course Category	Engineering Science	Branch	ME	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

CO	Statement	Skill	BTL	Expts.
CO1	Apply visual programming concepts, flowchart design techniques and Python programming constructs for solving problems.	Apply	L3	1-10
CO2	Conduct experiments as an individual, or team member by using Scratch/Raptor tools and Python programming.	Apply	L3	1-10
CO3	Develop an effective report based on various programs implemented.	Apply	L3	1-10
CO4	Apply technical knowledge for a given problem and express with an effective oral communication.	Apply	L3	1-10
CO5	Analyze outputs generated through Scratch/Raptor tools and Python programming.	Analyze	L4	1-10

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's
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