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SASURIE COLLEGE OF ENGINEERING

Approved by AICTE, New Delhi. Affiliated to Anna University, Chennai

Near NH544, Coimbatore Bypass, Near Vijayamangalam Tollgate,Tirupur 638056

SASURIE INSTITUTIONS

NAAC DOCUMENTS

QUALITY INDICATOR FRAME WORK

CRITERION - 1

CURRICULAR ASPECTS

SUBMITTED BY

IQAC

INTERNAL QUALITY ASSURANCE CELL

SASURIE COLLEGE OF ENGINEERING

SASURIE
COLLEGE OF ENGINEERING
Vijayamangalam, Tiruppur.

Criterion 1	Curricular Aspects	100

1.1 Curricular Planning and Implementation (20)

1.1.1The Institution ensures effective curriculum planning and delivery through a well-planned and documented process including Academic calendar and conduct of continuous internal Assessment

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Department :
Subject Code & Name : (3V-AID) GE8151 Problem Solving and python programming
Class & Batch : J
Semester : I

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S.NO	PARTICULARS	REMARKS
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	Prepared By	Verified By	Approved By
Sign:			
Name:			
	Faculty	HoD	Principal

Dr.M.VIJAYAKUMAR M.E., Ph.D.,
PRINCIPAL
SASURIE COLLEGE OF ENGINEERING,
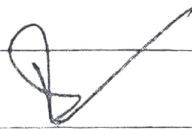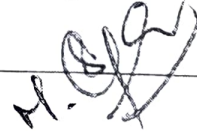Vijayamangalam - 638 056, Erode (Dt)

Academic Year 2020 - 2021 ODD Semester

STUDENTS NAME LIST

Department: BE - Computer Science Engineering

Year/Sem:1 / 1

Sl. No	Register Number	Student's Name	Student Status
1	732420104001	BALAJI M	Regular
2	732420104002	DEPAKAR B	Regular
3	732420104003	DHAVIN R	Regular
4	732420104004	KIRUBAKARAN M	Regular
5	732420104005	KOWSALYA A	Regular
6	732420104006	NIVETHA S	Regular
7	732420104007	RAGUPATHI M	Regular
8	732420104008	SUDHAKAR M	Regular
9	732420104009	SUDHARSON R	Regular
10	732420104010	VIGNESH M	Regular

SIGN		
NAME		
	FACULTY	HOD

Dr.M.VIJAYAKUMAR ME., Ph.D.,
PRINCIPAL
SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 638 056, Tirupur (Dt).

GE8151 PROBLEM SOLVING AND PYTHON PROGRAMMING L T P C
3 0 0 3

OBJECTIVES:

- To know the basics of algorithmic problem solving.
- To read and write simple Python programs.
- To develop Python programs with conditionals and loops.
- To define Python functions and call them.
- To use Python data structures -- lists, tuples, dictionaries.
- To do input/output with files in Python.

UNIT I   ALGORITHMIC PROBLEM SOLVING   9

Algorithms, building blocks of algorithms (statements, state, control flow, functions). notation (pseudo code. flow chart. programming language), algorithmic problem solving, simple strategies for developing algorithms (iteration, recursion). Illustrative problems: find minimum in a list, insert a card in a list of sorted cards, guess an integer number in a range, Towers of Hanoi.

UNIT II   DATA, EXPRESSIONS, STATEMENTS   9

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; Illustrative programs: exchange the values of two variables, circulate the values of n variables, distance between two points.

UNIT III   CONTROL FLOW, FUNCTIONS   9

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. Illustrative programs:
square root, gcd, exponentiation, sum an array of numbers, linear search, binary search.

UNIT IV   LISTS, TUPLES, DICTIONARIES   9

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; Illustrative programs: selection sort, insertion sort, mergesort, histogram.

UNIT V   FILES, MODULES, PACKAGES   9

Files and exception: text files, reading and writing files, format operator; command line arguments, errors and exceptions, handling exceptions, modules, packages; Illustrative programs: word count, copy file.

TOTAL: 45 PERIODS

OUTCOMES:

Upon completion of the course, students will be able to
- 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, dictionaries.
- Read and write data from/to files in Python Programs.

TEXT BOOKS:

1. 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/think-python/)
2. Guido van Rossum and Fred L. Drake Jr, "An Introduction to Python – Revised and updated for Python 3.2, Network Theory Ltd., 2011.

REFERENCES:

1. John V Guttag, "Introduction to Computation and Programming Using Python", Revisedand expanded Edition, MIT Press , 2013
2. Robert Sedgewick, Kevin Wayne, Robert Dondero, "Introduction to Programming in Python: An Inter-disciplinary Approach, Pearson India Education Services Pvt. Ltd., 2016.
3. Timothy A. Budd, "Exploring Python", Mc-Graw Hill Education (India) Private Ltd.., 2015.
4. Kenneth A. Lambert, "Fundamentals of Python: First Programs", CENGAGE Learning,2012.
5. Charles Dierbach, "Introduction to Computer Science using Python: A Computational Problem-Solving Focus, Wiley India Edition, 2013.
6. Paul Gries, Jennifer Campbell and Jason Montojo, "Practical Programming: An Introductionto Computer Science using Python 3", Second edition, Pragmatic Programmers, LLC. 2013.

Dr.M.VIJAYAKUMAR ME., Ph.D.,
PRINCIPAL
GASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 638 056, Tirupur (Dt).

SUBJECT INFORMATION RECORD

Department	CSE & NIVDS
Subject	Problem Solving and Python Programming
Year	I
Semester	I
Last year handled by	—
Percentage of Result (last year)	—
Quality Objectives	To produce 85% result in University Examination
Reference Book	John V. Guttag "Introduction to Computation and Programming using Python", Revised and expanded Edition, MIT press, 2013
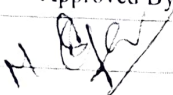
	Prepared By	Approved By
Sign:		
Name:		
	Faculty	HD

SCE/AMC 1.8   Rev 0.0

S. Prabakaran
CSE & AI&DS

0 1

No.	Date	Period	Description / Topic to be Covered			Actual Date	Period	Remarks
1	19.9.20	2	Fundamentals of computing, Identification of computational problems	1	1	14.9.20	2	
2	20.9.20	1	Algorithms	1	1	20.9.20	1	
3	21.9.20	2	Building blocks of algorithm (statements, state, control flow functions	1	1	21.9.20	2	
4	25.9.20	1	Notation pseudo code	1	1	25.9.20	2	
5	26.9.20	2	Flowchart, programming language	1	1	26.9.20	4	
6	27.9.20	4	Algorithm problem solving	1	1	27.10.20	2	
7	3.10.23	2	Simple strategy for developing algorithm (iteration, recursion)	1	1	03.10.20	1	
8	4.10.23	1	Illustrative problem find minimum	1	1	04.10.20	1	
9	5.10.23	6	in a list insert card in list, guess an integer number in a range, Tower of Hanoi	1	1	5/10/20	6	
			UNIT-II DATA, EXPRESSION, STATEMENTS					
10	5.10.20	7	Python Interpreter and Interactive mode	1	1	5.10.20	7	
11	6.10.20	6	Values and Types: int, float, boolean, string, and list	1	1	6.10.20	6	
12	7.10.20	1	Variables	1	1	7.10.20	1	
13	7.10.20	2	Expression	1	1	7.10.20	2	
14	9.10.20	1	Statements	1	1	9.10.20	1	
15	10.10.20	2	Tuple Assignment	1	1	10.10.20	2	
16	11.10.20	2	Precedence of operators, comment modules and functions	1	1	11.10.20	7	
17	11.10.20	6	definition and use, flow of execution, parameters and arguments	1	1	13.10.20	6	
18	14.10.20	4	Illustrative program: exchange the values of two variables, circulate the values of n variables, distance between two points	1	1	14.10.20	4	
			UNIT III - CONTROL FLOW FUNCTIONS					
19	14.10.20	6	Conditionals, Boolean value and operators	1	1	14.10.20	6	
20	14.10.20	7	conditional (if), alternative (if-else) chained conditional (if-elif-else)	1	1	14.10.20	7	
21	17.10.20	3,4	Iteration: state, while, for, break, continue, pass	1	1	17.10.20	3,4	
22	21.10.20	3	Fruitful function: return value, parameters	1	1	21.10.20	3	
23	18.10.20	6	local and global scope	1	1	18.10.20	6	
24	20.10.20	5	function composition, recursion	1	1	20.10.20	5	
25	28.10.20	3	Strings: string slices	1	1	28.10.20	3	
26	30.10.20	1	Immutability, string functions and methods, string module	1	1	30.10.20	1	
27	1.11.20	6	Illustrative program: square root, gcd, exponentiation, sum an array of numbers, linear search, binary search	1	1	1.11.20	6	
			UNIT-IV LISTS, TUPLES, DICTIONARIES					
28	30.10.20	3	List: list operations, list slices	1	1	30.10.20	3	
29	1.11.20	7	list methods, loop, mutability	1	1	1.11.20	7	

30	7.11.20	5	Aliasing cloning lists, list parameters					17.11.20	5	
31	8.11.20	8	Tuples: Tuple assignment				1	8.11.20	8	
32	17.11.20	6	Tuple as return value			1	1	17.11.20	6	
33	20.11.20	1	Dictionary: operations and methods				1	20.11.20	1	
34	21.11.20	3	Advanced list processing				1	21.11.20	2	
35	22.11.20	2	List comprehension				1	22.11.23	2	
36	15.11	2	Illustrative program: selection sort insertion sort merge sort				1	15.11.23	6.	

UNIT-V - FILES, MODULES, PACKAGES

37	2.12.20	6	Files and Exception				2	2.12.20	6	
38	2.12.20	7	Text files, reading and writing files				2	2.12.20	7	
39	5.12.20	5	Format operator, command line arguments				2	5.12.20	5	
40	6.12.20	3	Errors and exceptions				2	6.12.20	3	
41	7.12.20	3	Handling exception				2	7.12.20	3	
42	8.12.20	5	Modules				2	8.12.20	5	
43	8.12.20	5	package				2	8.12.20	5	
44	13.12.20	3	Illustrative program: word count				2	13.12.20	3	
45	16.12.20	7	copy file				2	16.12.20	7.	

	Sign			Verified by M.Ba	Authorized by
Name				HOD	principal

Dr.M.VIJAYAKUMAR ME., Ph.D.
PRINCIPAL
SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 638 056, Tirupur (Dt).

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College of Engineering
Vijayamangalam, Tirupur

Academic Year 2020-2021 ODD Semester
Students Mark List

Department: BE - Computer Science Engineering
Year/Sem:1 / 1

S.NO	REG.NO	Name	Internal I	Internal II	Model		
1	732420104001	BALAJI M	41	43	40		
2	732420104002	DEPAKAR B	39	40	75		
3	732420104003	DHAVIN R	57	35	67		
4	732420104004	KIRUBAKARAN M	35	30	80		
5	732420104005	KOWSALYA A	30	21	50		
6	732420104006	NIVETHA S	31	32	64		
7	732420104007	RAGUPATHI M	30	31	73		
8	732420104008	SUDHAKAR M	29	22	72		
9	732420104009	SUDHARSON R	30	30	05		
10	732420104010	VIGNESH M	39	31	60		

SIGN	
NAME	
	Faculty

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PRINCIPAL
SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 638 056, Tirupur (Dt).

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MODEL EXAMINATION - I			Date/Session	11.01.2020/AN	Marks	100
Course code	GE8151	Course Title	PROBLEM SOLVING AND PYTHON PROGRAMMING			
Regulation	2017	Duration	3 Hours	Academic Year	2020-2021	
Year	I	Semester	I	Department	ALL BRANCHES	

COURSE OUTCOMES

CO1:	Develop algorithmic solutions to simple computational problems
CO2:	Read, write, execute by hand simple Python programs.
CO3:	Structure simple Python programs for solving problems.
CO4:	Decompose a Python program into functions.
CO5:	Represent compound data using Python lists, tuples, dictionaries.
CO6	Read and write data from/to files in Python Programs.

Q.No.	Question	CO	BTS
	PART A **(Answer all the Questions 10 x 2 = 20 Marks)**		
1	What is the difference between the algorithm and the program.	CO1	R
2	Give the pseudo code to check the biggest of 2 numbers.	CO1	U
3	State the differences between Iteration and Recursion.	CO2	R
4	How modules are incorporated in a python program?	CO2	U
5	List some of the built-in modules in python	CO3	U
6	Write a simple program to add two numbers in python.	C03	U
7	Define strings and name some methods.	CO4	R
8	List some of the methods in List Operations.	CO4	R
9	State the differences between linear search and Binary search	CO5	R
10	What are the purposes of pass statement in python?	CO5	U

Dr.M.VIJAYAKUMAR ME., Ph.D.,
PRINCIPAL
SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 638 056, Tirupur (Dt).

PART B
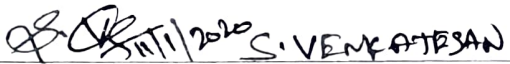## (Answer all the Questions 5 x 16 = 80 Marks)

11a	State the Towers of Hanoi problem. Outline a solution to the Towers of Hanoi problem with relevant diagrams.	CO1	E
	OR		
11b	Brief about the simple strategies for building an algorithm.	CO1	E
12a	Define Flowchart and explain symbols used in flowchart with example	CO2	C
	OR		
12b	Explain with example the building blocks of an algorithm	CO2	U
13 a	Explain Values & types supported in Python	CO3	E
	OR		
13 b	Write and explain the python program to swap two numbers with and without temporary variables.	CO3	E
14 a	Explain various types of operators used in Python	CO4	E
	OR		
14 b	Explain Various String functions used in python	CO4	E
15 a	Explain the concept of Linear & Binary Search with Python program	CO5	E
	OR		
15 b	Outline the conditional branching statements in python with an example	CO5	C

Course Faculty C.S. Prabakaran

HoD 10/11/2020
[M. Sathya]

Principal T. Suresh

(Name/Sign/Date)   (Name/Sign/Date)   (Name/Sign/Date)

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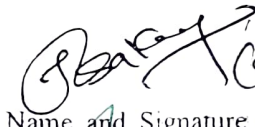
Internal Assessment Test Answer Book

Name	Nivetha . S			Year/ Semester/Section	I/I/A
Register Number	732420104006	Date/Session	AN 11.1.2020	Department	CSE
Course code	GE8151	Course Title	Problem Solving and Python Programming		
Internal Assessment Test	IAT 1 ☐		IAT 2 ☐	IAT 3 ☐	Model ☑
Name and Signature of the Invigilator with date	☐5/INTI/2020 S. VENKATESAN				

Instruction to the Student: Put tick mark to the question attended in the column against question.

Part A			Part B/ Part C					Total Marks
Q. No.	✓	Marks	Q. NO.	✓	a Marks	✓	b Marks	
1	✓	2	11	✓	9			9
2	✓	2	12			✓	5	5
3	✓	2	13			✓	10	10
4		1	14	✓	12			12
5	✓	1	15	✓	12			12
6	✓	1	16					
7	✓	2			Grand Total		48	
8	✓	1						
9		2		64/100				
10	✓	2						
Total		16	Grand Total		Name and Signature of the Examiner with date			
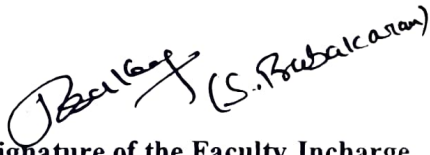
To be filled by the examiner

Course Outcomes	1	2	3	4	5	6	Total
Marks allotted	20	20	20	20	20	—	100
Marks Obtained	13	08	12	15	16	—	64

IQAC Audit - Remarks

Marks verified.

Name and Signature of the IQAC member

Dr.M.VIJAYAKUMAR ME., Ph.D.,
PRINCIPAL
SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 638 056, Tirupur (Dt).

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Assignment Question Paper

Assignment – 01			Date of Issue:	10.12.2020	Marks	10
Course code	GE8151	Course Title	PROBLEM SOLVING AND PYTHON PROGRAMMING			
Year	1	Semester/Section	I/ A	Date of Submission:	23.12.2020	

Q.No	Questions	CO
1	Explain in detail about tower of Hanoi.	CO1

(S. Bubalcaran)

Name and Signature of the Faculty Incharge

HoD/S&H

Dr.M.VIJAYAKUMAR ME., Ph.D.,
PRINCIPAL
SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 638 056, Tirupur (Dt).

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Assignment Answer Sheet

Name of the Student : Balaji. M

AU Register Number: 732420104001
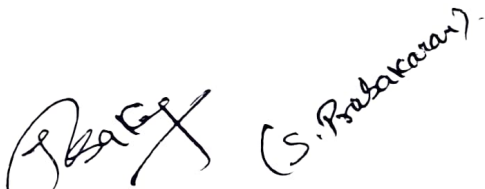
Assignment – 01			Date of Issue:	10.12.2020	Marks	10
Course code	GE8151	Course Title	PROBLEM SOLVING AND PYTHON PROGRAMMING			
Year	1	Semester/Section	I / A	Date of Submission:	23.12.2020	

Q.No	Questions	CO
1	Explain in detail about tower of Hanoi.	CO1

Mark Allocation

Rubrics	Marks Allocated	Marks obtained
Content Quality	6	6
Presentation Quality	2	2
Timely submission	2	2
Total marks	10	10

(S. Prabakaran)

Name and Signature of the Faculty Incharge

HoD/S&H

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