Course Code	**:**	19AC528			
Course Title	**:**	**Introduction to Python Programming**			
Course Structure	**:**	Lectures	Tutorials	Practicals	Credits
		3	-	-	3
Course Coordinator	**:**	M. Naga Seshudu			
Team of Instructors	**:**	Dr. G.Murali			

I. Course Overview

This course includes an overview of the various tools available for writing and running Python, and gets students coding quickly

II. Prerequisite(s):

Level	Credits	Periods / Week	Prerequisites
UG	4	4	**Mathematical background ,Logical Thinking and Basic concepts of Computer Programming.**

III. Assessment:

FORMATIVE ASSESMENT	
Mid Semester Test I for 15 Marks in first 2 units is conducted at8 the end of 9th week. Mid Semester Test II for 15 Marks in last three units is conducted at the end of the course work.	15 Marks
Multiple Choice Mid Semester Test I for 10 Marks in first 2 units is conducted at8 the end of 9th week. Multiple Choice Mid Semester Test I for 10 Marks in first 2 units is conducted at the end of the course work. From best 80 % and another is 20 % taken as final	10 Marks
Total (Formative)	25 Marks
Assignment marks	5 Marks
Total	30 Marks
End Semester Examination in all units is conducted for 70 Marks	70 marks
Grand Total	100 Marks

IV. Course objectives:

1. To introduce object oriented programming using an easy-to-use language.
2. To use iterators and generators.
3. To test objects and handle changing requirements.
4. To be exposed to programming over the web.
5. Discuss real-world applications of Python in various fields, such as web development, data science, and automation.
6. Encourage collaboration and team coding practices, including code reviews and pair programming.

V. Course Outcomes:

1. understand and use variables
2. work with common Python data types like integers, floats, strings, characters, lists, dictionaries, as well as pandas DataFrames
3. use basic flow control, including for loops and conditionals
4. read data from text files
5. obtain basic summary statistics from data files
6. manipulate and extract data from pandas DataFrames
7. write Python code according to standard style guidelines

VI. Program outcomes:

	Program Outcomes
A	Students should be able to write, read, and understand Python code, including variables, data types, and basic syntax.
B	Students should be able to use Python to solve simple computational problems and demonstrate an understanding of algorithmic thinking.
C	Understand and utilize control structures such as loops (for, while) and conditional statements (if, else).
D	Write and call functions to promote code reusability and understand the concept of modular programming.
E	Familiarity with common data structures such as lists, tuples, dictionaries, and how to manipulate and work with them in Python.
F	Ability to read from and write to files using Python.
G	Implement basic error handling techniques and understand exceptions.
H	Introduction to key Python libraries and modules (e.g., math, random) for specific tasks.
I	Use comments and docstrings to document code for clarity and maintainability.
J	Apply Python to solve real-world problems and be able to decompose a problem into smaller, solvable tasks.
K	Develop debugging skills to identify and fix common programming errors.
L	Adherence to Python coding style conventions and an understanding of PEP 8 guidelines.
M	Ability to collaborate with peers on coding projects using version control and other collaboration tools.

VII. Syllabus:

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTHAPURAMU
COLLEGE OF ENGINEERING (AUTONOMOUS) :: PULIVENDULA
Regulation –R20

B.Tech.I year I sem(CSE)   **L T P C**
                                                                      3 0 0 3

Introduction to Python Programming

UNIT-I- Introduction, Data types and Expressions
Introduction: Computer science,Computer algorithms,Computer softwares,The Python programming language,First program in Python.
Data types and expressions: Literals,Variables and Identifiers,Operators ,Expressions, and data types.

UNIT –II – Control Structures ,Lists
Control Structures: Control structures ,Boolean expressions,Selection control and Iterative control.
Lists: List structures,Lists in python,Iterarions over lists,Assigning and copying lists ,List comprehensions.

UNIT-III – Dictionaries,tuples and Sets
Dictionaries,tuples and Sets: Dictionary types in Python, Implementation of Dictionary,Tuples ,Set data type- the Set data type in Python, Implementation of sets.

UNIT –IV-Design with functions ,Recursion ,Strings and Text Files
Program routines,Functions:calling value returning functions,calling non value returing functions,parameter passing,variable scope,**Recursion-**Recursive functions,Recursive problem solving, Iteration vs Recursion ,**Text files**:Using text files,String processing, Exception handling.

UNIT-V-Objects and Their use
Objects and Their use: Software objects:Object,Object Refrences,Turtle graphics-Creating a turtle graphics window,The default turtle,Fundamental turtle attributes and behavior ,Additional turtle Attributes,creating multiple turtles.

Text Books:

1. Charles Dierbach,Introduction to Computer Science using Python:A Computational Problem-Solving Focus,Wiley India Edition,2016.
2. Mark Lutz,"Programming Python,"O. Reilly Publications,Fourth Edition,2011.

Reference Books:

1) Kenneth Lambert and B.L.Juneja,Fundamentals of Python,Cengage Learning, Third Edition,2012.

IX. Course Plan:

The course plan is meant as a guideline. There may probably be changes.

Date	Lecture No.	Course Learning Outcomes	Topics to be covered	Reference
			UNIT-I	
19-07-18	1-2	1. An understanding of the computer science,computer algorithms.	**Introduction:**Computer science,Computer algorithms	T1-2-5,6-9 http://bedford-computing.co.uk/learning/wp-content/uploads/2015/10/Introduction-to-Computer-Science-Using-Python.pdf
23-07-18	3-4	2. An understanding of the Computer software	**Introduction:** Computer software	T1-14-17 http://bedford-computing.co.uk/learning/wp-content/uploads/2015/10/Introduction-to-Computer-Science-Using-Python.pdf
26,29-07-18	5-8	3. An understanding of the Python language and first program in python.	Introduction:The python programming language and first program in python.	T1-22-37 http://bedford-computing.co.uk/learning/wp-content/uploads/2015/10/Introduction-to-Computer-Science-Using-Python.pdf
29-07-18 (s)	9-10	4. An understanding of the Data types and expressions.	**Data types and expressions:**Literals,Variables	T1-40-50,T3-41-43,45 http://bedford-computing.co.uk/learning/wp-content/uploads/2015/10/Introduction-to-Computer-Science-Using-Python.pdf
30-07-18	11-12	5. An understanding of the Data types and expressions	Identifiers , Operators,Expressions	T1-57-60,62-64, T2-49-50
02-08-18	13	6. An understanding of the Data types	Data types.	T2-47-48,T1-64-66 http://bedford-

				computing.co.uk/learning/wp-content/uploads/2015/10/Introduction-to-Computer-Science-Using-Python.pdf
		UNIT-II		
06-08-18	14-17	1. An understanding of the Control Structures	Control structures ,Boolean expressions	T1-80-87,T2-77-79 http://bedford-computing.co.uk/learning/wp-content/uploads/2015/10/Introduction-to-Computer-Science-Using-Python.pdf
09-08-18	17-19	3. An understanding of the Control Structures.	Selection control and Iterative control.	T2:86-88,T1-88-96
13-08-18	19-22	4. An understanding the lists.	List structures,Lists in python,Iterarions over lists	T1-127-134
16-08-18	22-25	5. An understanding a lists.	Assigning and copying lists ,List comprehensions.	T1:139-146 http://bedford-computing.co.uk/learning/wp-content/uploads/2015/10/Introduction-to-Computer-Science-Using-Python.pdf
		UNIT-III		
27-08-18	25-28	1. In this learning the Dictionary types in Python	**Dictionaries,tuples and Sets:**Dictionary types in Python	T2:153-155,T1-338-339 http://bilal-qudah.com/mm/Programming%20Python%20Fourth%20Edition.pdf
30-08-18 06-09-18	28-31	2. Learning about Implementation of Dictionary,Tuples.	Implementation of Dictionary,Tuples	T1:338-339,T2:155-158
10-09-18	31-34	3. An understanding about Set data type- the Set data	Set data type- the Set data type in Python,	T1:346-347 http://bilal-qudah.com/mm/Programming%20

		type in Python,		[Python%20Fourth%20Edition.pdf](#)
15-09-18 (s)	34-37	4.Implementation of sets.	Implementation of sets.	T1: 347-348
			UNIT-IV	
17-09-18	37-40	1. An understanding about calling functions	**Program routines,Functions:**calling value returning functions	T1:169-170,176 [http://bilal-qudah.com/mm/Programming%20Python%20Fourth%20Edition.pdf](#)
20-09-18	41	2. An understanding about calling non value returing functions,.	calling non value returing functions, parameter passing,variable scope	T1:177-183
22-09-18 (s)	41-43	3. An understanding about **Recursion**	Recursive functions,Recursive problem solving, Iteration vs Recursion	T2-178-182,T1-461-465 [http://bilal-qudah.com/mm/Programming%20Python%20Fourth%20Edition.pdf](#)
24-09-18	44	4. An understanding **Text files**:Using text files,String processing,	**Text files**:Using text files,String processing,	T1: 291-295
27-09-18	44-48	5. Exception handling	Exception handling	T1: 303-309
			UNIT-V	
04-10-18	50-53	1. Software objects:Object, Object Refrences	**Software objects**:Object,Object Refrences	[http://repository.itb-ad.ac.id/146/1/403.%20Fundamentals%20of%20Python%20First%20Programs%2C%20Second%20Edition.pdf](#)
08-10-18 11-10-18	53-56	2. Turtle graphics-Creating a turtle graphics window,The default turtle,.	Turtle graphics-Creating a turtle graphics window,The default turtle,	T2:206-209
13-10-18	56-60	3. Fundamental turtle attributes and behavior	Fundamental turtle attributes and behavior ,Additional turtle	T1: 210-215 [http://repository.itb-](#)

(s) 15-10-18		,Additional turtle Attributes, creating multiple turtles.	Attributes,creating turtles.	multiple ad.ac.id/146/1/403.%20Fundamentals%20of%20Python%20First%20Programs%2C%20Second%20Edition.pdf

X. Mapping course outcomes leading to the achievement of the program outcomes:

Course Outcomes	Program Outcomes												
	a	b	c	D	E	f	g	h	i	j	k	l	M
1						H				S			
2	H												S
3					H								S
4			S								H		
5					S	H							
6		H											
													S

S = Supportive   **H = Highly Related**

Justification of Course syllabus covering Course Outcomes:

By covering the syllabus a student can understand the designing of algorithm and flowcharts. Student is able to develop applications using C Program Constructs.

Justification of CO's –PO's Mapping Table:

By mapping CO-1 to the PO's F and J which are related to the course CO1: The student is able to analyze the programming skills.

By mapping CO-2 to the PO's A and M, which are related to the course CO2: The student is able to design algorithm and draw the flowcharts for different types of problems

By mapping CO-3 to the PO's E and M which are related to the course CO3: The student is able to understand the purpose of different programming Constructs.

By mapping CO-4 to the PO's C and K which are related to the course CO4: The student is able to understand the creative skills and practical skills of data structures.

By mapping CO-5 to the PO's E and F which are related to the course CO5: The student is able to understand the Purpose of Stacks, Queues and Linked lists.

By mapping CO-6 to the PO's B and M which are related to the course CO6: The student is able to understand the concept of Graphs and Trees.

Head of the Department   **Faculty**

 Dr.G. Murali   **P. Vijaya Kumari**