

2020-21 Onwards (MR-20)	MALLA REDDY ENGINEERING COLLEGE (Autonomous)	B.Tech. VII Semester		
Code:A0564	Fundamentals of Python Programming	L	T	P
Credits: 3		3	-	-

Prerequisites: NIL

Course Objectives:

This course enables the students to understand the fundamentals of python programming, describe the various operators and control flow statements, analyze various data structures, make use of functions, discuss about MODULE s, packages in python, object oriented concepts, exception handling, illustrate advanced concepts like multithreading, graphics and generate various test cases.

MODULE I: Python Programming-Introduction [09 Periods]

Introduction- History of Python, Need of Python Programming, Applications Basics of Python Programming Using the REPL (Shell) Running Python Scripts.

Data Types - Variables, Assignment, Keywords, Input-Output, Indentation-Types - Integers, Strings, Booleans.

MODULE II: Operators and Expressions [09 Periods]

Operators - Operators- Arithmetic Operators, Comparison (Relational) Operators, Assignment Operators, Logical Operators, Bitwise Operators, Membership Operators, Identity Operators.

Expressions - Expressions and order of evaluations Control Flow- if, if-elif-else, for, while, break, continue.

MODULE III: Data Structures and Functions [10 Periods]

A: Data Structures - Lists - Operations, Slicing, Methods; Tuples, Sets, Dictionaries, Sequences, Comprehensions.

B: Functions - Defining Functions, Calling Functions, Passing Arguments, Keyword Arguments, Default Arguments, Variable-length arguments, Anonymous Functions, Fruitful, Functions (Function Returning Values) Scope of the Variables in a Function - Global and Local Variables.

MODULE IV: MODULEs, Packages and Exception handling [10 Periods]

MODULEs - Creating MODULE s, import statement, from. Import statement; name spacing, Python packages, Introduction to PIP, Installing Packages via PIP, Using Python Packages Object Oriented Programming OOP in Python: Classes, 'self variable', Methods, Constructor, Method, Inheritance, Overriding Methods, Data hiding.

Error and Exceptions - Difference between an error and Exception, Handling Exception, try except block, Raising Exceptions, User Defined Exceptions

MODULE V: Library functions and testing [10 Periods]

Brief Tour of the Standard Library - Operating System Interface - String Pattern Matching, Mathematics, Internet Access, Dates and Times, Data Compression, Multithreading, GUI Programming, Turtle Graphics.

Testing - Why testing is required?, Basic concepts of testing, Unit testing in Python, Writing Test cases, Running Tests.

TEXT BOOKS

1. Vamsi Kurama, “**Python Programming: A Modern Approach**”, Pearson Publications.
2. Mark Lutz,” **Learning Python**”, OriellyPublishers

REFERENCES

1. Allen Downey, “**Think Python**”, Green TeaPress
2. W. Chun, “**Core Python Programming**”, Pearson.
3. Kenneth A. Lambert, “**Introduction to Python**”, Cengage

E-RESOURCES

1. <http://kvspgtcs.org/wp-content/uploads/2013/08/Python-Programming-for-the- Absolute-Beginner.pdf2>
2. [http://www.bogotobogo.com/python/files/pytut/Python%20Essential%20Reference,%20Fourth%20Edition%20\(2009\).pdf](http://www.bogotobogo.com/python/files/pytut/Python%20Essential%20Reference,%20Fourth%20Edition%20(2009).pdf)
3. <https://periodicals.osu.edu/ictjournal/dokumenty/2015-02/ictjournal-2015-2-article- 1.pdf>
4. <http://ptgmedia.pearsoncmg.com/images/9780132678209/samplepages/0132678209.p df>
5. <http://www.learnerstv.com/Free-Computer-Science-Video-lectures-ltv163-Page1.htm>

Course Outcomes:

At the end of the course, students will be able to

CO	Statement	Blooms Taxonomy Level
1	Understand the basics of python programming language	Understand
2	Illustrate simple programs with control structures.	Understand
3	Apply advanced concepts like data structures and make use of functions	Apply
4	Develop simple applications by using MODULE s, packages and exception handling mechanisms.	Create
5	Demonstrate projects that make use of libraries and generate test cases for the projects.	Understand

CO	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	1	-	-	1	1	-	-	-	-	-	-	-	1	-	-
CO2	-	1	1	3	-	-	-	-	-	-	-	-	-	1	1
CO3	1	1	1	1	2	-	-	-	-	-	-	1	-	2	1
CO4	-	-	-	-	-	-	-	-	-	-	1	1	-	2	2
CO5	-	-	-	-	-	1	-	-	-	-	-	1	-	2	1