

Programme Code:	B.Sc. PHY			Programme Title:	Bachelor of Physics	
Course Code:	21VAD601			Title	Batch:	2021 – 2024
				Value added: Python Programming	Semester:	VI
Lecture Hrs./Week or Practical Hrs./Week	-	Tutorial Hrs./Sem.	-		Credits:	-

Course Objective

To provide fundamental knowledge of Python programming and create the ability to interpret physics oriented problems using Python

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand the basics, structure and functions of Python programming as useful scripting language	K1 / K2
CO2	Plan to write the algorithm of a program with the knowledge of mathematical operators, logical operators, conditional and looping statements	K3
CO3	Categorize various statements of Python programming into the lists and tuples	K4
CO4	Explain clearly the importance of different function statements and pass the arguments between functions	K5
CO5	Implement and compile the python programming for application in the field of Physics	K6

Mapping

PO /PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2
CO1	H	M	-	-	M	-	H	-
CO2	H	H	L	-	H	-	M	M
CO3	M	M	H	M	M	L	M	M
CO4	-	L	M	H	L	M	-	H
CO5	-	-	-	M	-	M	-	H

H – High; M – Medium; L – Low

Python Programming

Units	Content	Hrs
Unit I	INTRODUCTION TO PYTHON LANGUAGE History of Python – features – command Line Arguments - Parsing Command Line Arguments - Python basics – statement and syntax – Identifiers – comments in Python - Basic style guidelines	6
Unit II	VARIABLE TYPES AND BASIC OPERATORS Assigning Values to Variables – Standard Data Types - Python Numbers – Python Strings - Python Lists - Python Tuples - Python Dictionary - Data Type Conversion - Types of Operators	6
Unit III	STRING OPERATORS Sequences: Strings, Lists and Tuples – Sequences – Strings and strings operators – String built-in methods – Lists – List type Built in Methods – Tuples	6
Unit IV	CONDITIONAL AND LOOPING STATEMENT Conditionals and loops – if statement – else Statement – elif statement – conditional expression – while statement – for statement – break statement – continue statement – pass statement – Iterators and the iter() function	6
Unit V	PYTHON FUNCTIONS Functional Programming – Functions – calling functions – creating functions – passing functions – Built-in Functions: apply(), filter(), map() and reduce() – Programming using functions	6
	Total Contact Hrs	30

Pedagogy and Assessment Methods:

Seminar, Power Point Presentation, Chalk and talk, Quiz, Assignments, Group Task.

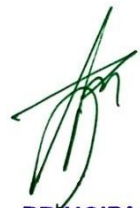
Text Book

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Wesley J. Chun	Core Python Programming	Pearson Education Publication	2012

Reference Books

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHERS \ EDITION	YEAR OF PUBLICATION
1	Nageshwara Rao	Core Python Programming	Wiley Publication	2018
2	John V Guttag	Introduction to Computation and Programming Using Python	Prentice Hall	2013
3	Kenneth A. Lambert	Fundamentals of Python – First Programs	CENGAGE Publication	2016
4	Related online contents [MOOC, SWAYAM, NPTEL, Websites etc] www.python.org			


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