

### KISAN VEER MAHAVIDYALAYA, WAI



**Department of Mathematics** 

### "Certificate Course in Python"

Course Report: 2021-22.

The department of Mathematics had decided to conduct a certificate course for B.Sc. III in departmental meeting. The title of the course is "Certificate Course in Python" was finalized. The notification and advertisement were made through our college website and Brochure of the course was uploaded on the college website. The course was started on 22<sup>nd</sup> Nov 2022. The timetable was displayed on the department's notice board.

5 students were admitted for the said course. Regular lectures and practicals were conducted according to the time-table. Department of BCA, Statistics and Mathematics in Collaboration with Patil Academy, Satara organized Three-day workshop on "Python in Future Technologies" on 18th, 20th and 22nd December 2021. Examination of the said course was conducted and certificates were issued to all the passed students. Students gained the knowledge about programming using Python and one more certificate along with the B.Sc. degree. The supportive staff and the administration of the College and specially Hon. Principal supported a lot.

The record of the course has maintained in the department. One copy had given in IQAC cell and same had been uploaded on college website.

Sum

Dr. S. R. Tate
Course Coordinator
Department of Mathematics

Dr. Gurunath. J. Fagare

Principal

Kisan Veer Mahavidyalaya, Wai

Department of Mathematics

Kisan Veer Mahavidyalaya, Wai

Date:- 26/10/2021

To, Principal, Kisan Veer Mahavidyalaya, Wai.

Suit: - About starting a new short term course "Certificate Course in Python" for B. Sc. III (Mathematics) from academic year 2021-22

Respected Sir,

With reference to above subject, Department of Mathematics going to start a new short term course for B. Sc. III (Mathematics) student entitled "Certificate Course in Python" from academic year 2021-22. Duration of the course will be 3 Months and intake capacity will be 40.

So, it is a humble request to give permission to start this course.

Thursday You

प्रवास्त्री आहे.

26/10/2021

25/10/2021

Yours Sincerely,

(Dr. S. R. Tate)

Head

Department of Mathematics Kisan Veer Mahavidyalaya Wai - 412803

### Kisan Veer Mahavidyalay, Wai

Department of Mathematics

Self Funded Certificate Course in Python

### BOARD OF STUDIES MEETING PROCEEDING

Date: 29/10/2021

The first meeting of the BOS was called on dated 29<sup>th</sup> October 2021, at 2.30 P.M. at Kisan Veer Mahavidyalaya, Wai.

### **Present Member:**

Sr. No.	Name	Designation	Sign
1	Dr. S. R. Tate	Head, Department of Mathematics	Some
2	Mrs. V. A. Sawant	Assistant Professor	Gamb
3	Mr. S. S. Nalavade	Expert, Head Department of Mathematics,  Y. C. I. S, Satara	ate
4	Mrs. S. A. Patil	Expert, Patil Academy, Satara	SPatil_

Following subjects were discussed in the meeting.

- 1) Formulation of syllabus for Certificate Course in Python.
- 2) Aims and objectives of the course were designed and framed.
- 3) Accordingly, the papers, topics and sub topics were designed as per the need of the course.
- 4) It has been decided that the last year B.Sc. Part III Mathematics Student's are eligible for this course.
- 5) Since there was no matter for discussion, the meeting was concluded.

### Kisan Veer Mahavidyalay, Wai

### Department of Mathematics

Self Funded Certificate Course in Python

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	Mr. S. S. Nalavade	Expert. Head, Department of Mathematics, Y. C. I. S. Satara	
*	Mrs. S. A. Patil	Expert. Patil Academy, Satara	Patil

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### Kisan Veer Mahavidyalaya, Wai

### Department of Mathematics

### CERTIFICATE COURSE IN PYTHON

### **SYLLABUS**

### 1) Introduction to Python:

Python Identifiers and Keywords, data types, simple mathematical operation, Indentation and Comments. Input and Output, First Python program

2) Expression and operators:

Expression, Boolean expression, logical operations: comparison operator, membership operator, identity operator, bitwise operator. Order of evaluation. File Handling: open, read, write, append modes of file.

3) Conditional Statements:

if-else, nested if-else, if-elif-else, try-except block.

4) Looping Statements, Control statements:

Looping Statements: for loop, while loop, Nested loops, Control Statements: break, continue and pass.

5) Functions:

Built-in functions, User-defined functions, Arguments, recursive function, Python Anonymous/Lambda Function, Global, Local and Nonlocal variables and return statement.

6) Modules and packages in Python:

Modules, import, import with renaming, from-import statement, math module, cmath module, random module, packages.

7) Python Data structure:

Strings, list, tulpes, dictionary, set and array.

8) Operations on set and array:

Set operations, Intersection, union, difference, symmetric difference, searching and sorting.

9) Data visualization in Python: 2D and 3D plot in python: line plot, bar plot, histogram plot, scatter plot, pie plot, area plot, Mandelbrot fractal set visualization.

### **Practical Programs:**

- 1) Program to Display "Hello Python" on Screen
- 2) Program to create file
- 3) Program to find greater number between two numbers
- 4) Program to find greater and equal number between two numbers
- 5) Program to find the number is Positive or Negative
- 6) Program to calculate the class obtained by the student.
- 7) Program to calculate the maximum between three numbers.
- 8) Program to determine whether the given integer is odd or even.
- 9) Program to find sum of first n integers
- 10) Program to find factorial of n
- 11) Program to check whether a given number is prime or not.
- 12) Program to find factorial of n using Recursive Function
- 13) Program to check whether the given numbers are relatively prime or not.
- 14) Program to verify Euler's formula using Python.
- 15) Program to check palindrome string.(A palindrome string is one that reads the same backward as well as forward.)
- 16) Program to remove duplicates from a list
- 17) Program to add an element in the set.
- 18) Program to remove elements in the set.
- 19) Program to solving systems of linear equations using Gauss Elimination Method
- 20) Program to solving systems of linear equations using LU Decomposition method
- 21) Program to find root of an equation using Bisection Method
- 22) Program to find root of an equation using Newton-Raphson formula
- 23) Program to solving ordinary differential equations (ODEs) with a given initial value using Euler Method
- 24) Program to find the approximate solution of ordinary differential equations (ODEs) with a given initial value using Runge-Kutta 4th Order Method.
- 25) Plotting 2D, 3D graphs.

Evaluation: Practical Work (40) + Viva Voce (10).

### Kisan Veer Mahavidyalaya, Wai

### Department of Mathematics

### CERTIFICATE COURSE IN PYTHON

STUDENT LIST (2021-22)

SR.	ROLL	NAME
NO.	NO.	
1	6	PETKAR DIVYA SANTOSH
2	36	CHORAGE PRAJAKTA PRAKASH
3	80	DHANAWADE SHRADDHA SANTOSH
4	101	BHOSALE KAIVALYA SANTOSH
5	114	BHOSALE RUTUJA DHANAJI

Enge

Co-ordinator

Head, Department of Mathematics

Kisan Veer Mahavidyalaya, Wai

Department of Mathematics

Kisan Veer Mahavidyalaya, Wai

Date: 20/11/2021

### **Notice**

All the students of B.Sc. III are hereby informed that "Certificate Course in Python" is going to start from 22/11/2021. This course is compulsory for B.Sc. III (Mathematics) Students.

Principal

Course Co-ordinator

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Department of Mathematics

### Kisan Veer Mahavidyalaya, Wai

### Department of Mathematics CERTIFICATE COURSE IN PYTHON TIME TABLE (2021-22)

Time 11:00 am - 12:00 pm 12:00 pm - 2: 00 pm	Friday Theory (VAS) Practical (SRT)	Saturday Theory (VAS) Practical (SRT)
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Note Attendance of student is compulsory

Principal

Course Co-ordinator

Department of Mathematics

Janata Shikshan Sanstha's
KISAN VEER MAHAVIDYALAYA, WAI
DEPARTMENT OF MATHEMATICS
CERTIFICATE COURSE IN PYTHON

Class: B.Sc.III

2020-21 ATTENDENCE (THEORY)

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ATTENDENCE (PRACTICAL)

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Head Department of Mathematics Kisan Veer Mahavidyalaya Wai - 412803

# KISAN VEER MAHAVIDYALAYA, WAI DEPARTMENT OF MATHEMATICS CERTIFICATE COURSE IN PYTHON

2020-21 ATTENDENCE (THEORY)

Class: B.Sc.III

Class	Class: B.Sc.III							Month:		
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3	80	80 DHANAWADE SHRADDHA SANTOSH	B	K	B	N	B	A	B	B
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5	114	114 BHOSALE RUTUJA DHANAJI								

ATTENDENCE (PRACTICAL)

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Head

Department of Mathematics

Kisan Veer Mahavidyalaya

### KISAN VEER MAHAVIDYALAYA, WAI DEPARTMENT OF MATHEMATICS CERTIFICATE COURSE IN PYTHON

2020-21

ATTENDENCE (THEORY)

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## ATTENDENCE (PRACTICAL)

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Department of Mathematics Kisan Veer Mahavidyalaya Wai - 412803 Janata Shikshan Sanstha's
KISAN VEER MAHAVIDYALAYA, WAI
DEPARTMENT OF MATHEMATICS
CERTIFICATE COURSE IN PYTHON

Class: B.Sc.III

2020-21 ATTENDENCE (THEORY)

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### ATTENDENCE (PRACTICAL)

Class: B.Sc.III

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Wai - 412803

Office,

Kisan Veer Mahavidyalaya,wai,

Date: 01/06/2022.

### **Notice**

All the students of B. Sc. III (Mathematics) are hereby informed that their final Examination of "Certificate Course in Python" will be held on Wednesday, 8th June, 2022. The students who will remain absent for the examination and the students who will be failed in the examination, will not be able to get Certificate of the Course.

Source

Co-ordinator

Head, Department of Mathematics Kisan Veer Mahavidyalaya, Wai

### Janata Shikshan Sanstha's Kisan Veer Mahavidyalaya, Wai CERTIFICATE COURSE IN PYTHON B. Sc. III (Mathematica)

Y	B. Sc. III (Mathematics)	
יני	ly and Date: ~ Wednesday, 08-06-2022	Total Marks:-50
Sections	Met - Trou A.M. Onwards	Lothi maregy
ins	tructions: 1) All questions are compulsory	
	<ul><li>2) Figures to the right indicate full marks,</li><li>3) Distribution of marks; Practical Work (40) + Viva Voc</li></ul>	c (10).
Q.1		
	$\frac{dy}{dx} = f(x, y)$ with initial conditions $y=y_0$ when $x=x_0$ , using Euler method.	iterential equation is Modified
	method,	(10)
	B) Run the Euler's Modified method program to solve $\frac{dy}{dx} = xy$	and
	y(0) = 1, take h=0.1 and find the value of y at x=1.  OR	(05)
Q. 1	National Company of the property of the proper	AX=B by
	EO- factorization method.	(10)
	(B) Run the LU- factorization method, program to solve the foll	owing system of
	equations $x + y + z = 1, 3x + y - 3z = 5, x - 2y - 5z = 10$	(05)
Q. 2	(A) Write a code in python to find the numerical solution of the di	fferential equation
	$\frac{dy}{dx} = f(x, y)$ with initial condition $y = y_0$ when $x = x_0$ , using fourth	ı order
	Runge-Kutta method.	(10)
	B) Run the fourth order Runge – Kutta method program to solve $\frac{d}{dt}$	$x = x^2y$ and
	y(0) = 1, taking h=0.1 and find the value of y at x=1.  OR	(05)
Q.2	A) Write a code in python to find one of the approximate root of f	unction $f(x)$
	using Newton Raphson method.	(10)
	B) Run the Newton Raphson method program to find one of the	approximate root of
	$f(x) = x^5 + 3x - 10.$	(05)
Q.3	Solve any TWO of the following problems by using python.	(10)
	(a) Construct the list of 23,24,43,23,12,31,45,54,56,79,40 and appe	end this by 20.30.40
	(b) Find the value of sin(30°)	20,20,70
	(c) Sort the given list in descending order: 92,34,65,88,21,23.	
	(d) For given two sets $A = \{1,2,5\}$ and $B = \{5,7,8\}$ find set different	nce and symmetric
	difference.	

### Kisan Veer Mahavidyalaya Wai

### **Department of Mathematics**

Examination: Certificate Course in Python (2021-22)

Attendance

Time: 11:00 to 2:00

Date: 08/06/2022

Sr. No	Roll No	Name of the Student	Sign
1	6	PETKAR DIVYA SANTOSH	20Ha-
2	36	CHORAGE PRAJAKTA PRAKASH	Ochoragi
3	80	DHANAWADE SHRADDHA SANTOSH	3
4	101	BHOSALE KAIVALYA SANTOSH	(123B
5	114	BHOSALE RUTUJA DHANAJI	AB

### Kisan Veer Mahavidyalaya Wai

### Department of Mathematics

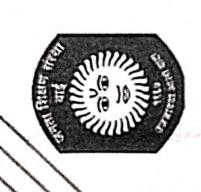
Examination: Certificate Course in Python (2021-22)

Marksheet

Time: 11:00 to 2:00

Date: 08/06/2022

Sr. No	Roll No.	Name of the Student	Marks (50)
1	6	PETKAR DIVYA SANTOSH	44
2	36	CHORAGE PRAJAKTA PRAKASH	48
3	80	DHANAWADE SHRADDHA SANTOSH	4-
4	101	BHOSALE KAIVALYA SANTOSH	36
5	114	BHOSALE RUTUJA DHANAJI	10



# Kisan Veer Mahavidyalaya, Wai Department of Mathematics



This is to certify that Miss. Dhanawade Shraddha Santosh studying in B. Sc. III

(Mathematics) has completed successfully Certificate Course in Python conducted by the

Department of Mathematics, Kisan Veer Mahavidyalaya, Wai during the Academic year 2021-22

and obtained Grade "A".

Date: 08/06/2022

اعتيا

Co-ordinator Head, Department of Mathematics Kisan Veer Mahavidyalaya, Wai

