

Janata Shikshan Sanstha's KISAN VEER MAHAVIDYALAYA, WAI



Certificate Course in Python for Numerical Computations

Supportive Documents for Certificate Course Annual Report

Certificate Course Annual Report includes-

- 1. Short Report of the Particular Academic Year
- 2. Certificate Course Brochure/Handbook
- 3. Notice regarding the Introduction date of the course & BOS
- 4. Syllabus of the Course Objectives and Outcomes
- 5. List of enrolled students
- 6. Attendance Sheets
- 7. Result of the Course
- 8. One Sample Certificate of the pass student
 - 9. Geo-tagged Photos (If Available).



Janata Shikshan Sanstha's

KISAN VEER MAHAVIDYALAYA, WAI



Department of Mathematics

Janata Shikshan Sanstha's

Kisan Veer Mahavidyalaya, Wai

Department of Mathematics

"Certificate Course in Python for Numerical Computations"

Course Report: 2023-24

The Department of Mathematics has introduced the Certificate Course "Certificate Course in Python for Numerical Computations" from the academic year 2023-2024. The Certificate Course in Python for Numerical Computations was structured to provide participants with a basic foundation in Python programming language and its application in numerical computing. The course for the academic year 2023-24 was started on 7th August 2023. The timetable was displayed on the department's notice board. Total 22 students were enrolled and successfully completed this course. Regular lectures and practicals were conducted according to the timetable. The examination of the said course was conducted and certificates were issued to all the passed students. The non-teaching staff and the administration of the College and specially Hon. Principal supported a lot in conducting the course.

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

Course Coordinator Department of Mathematics WAI ON SAMO

Principal Kisan Veer Mahavidyalaya, Wai

2. Certificate Course Brochure/Handbook

Janata Shikshan Sanstha's

Kisan Veer Mahavidyalaya, Wai

Department of Mathematics

CERTIFICATE COURSE IN PYTHON FOR NUMERICAL COMPUTATIONS

Course Description:

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This course introduces students to numerical computation techniques using Python programming language, with a focus on methods like the Bisection Method, Newton-Raphson Method, Euler's Method and Runge-Kutta Methods. and numerical solutions of systems of linear algebraic equations. Participants will learn how to implement these algorithms to solve mathematical problems efficiently.

Course Duration: 30 hours

Fees: Rs.500/-

Course Objectives:

- > To understand the fundamentals of the Python programming language.
- > To get familiar with basic numerical computing concepts and methods.
- > To develop the ability to write the Python program for the problem related their subjects using Numerical Methods.
- > Student should be able to solve mathematical problems using Python language.

Course Outline:

- > Introduction to Python
- Expression and operators
- > Conditional Statements, Looping Statements and Control statements
- > Functions
- > Modules and packages in Python
- > Data visualization in Python
- > Numerical Solutions of Systems of linear algebraic equations
- ➤ Roots of Equation
- Numerical Methods for The Solution of Ordinary Differential Equations

Specific Equipment's: Python Software, LCD, Projector, Computer.

Course Outcomes:

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

- > Explain basic principles of Python programming language
- > Develop logical thinking
- Write programs in Python
- > Enhance problem-solving skills through numerical analysis.
- > Develop skills in implementing numerical algorithms efficiently

Scheme of Examination: The examination Shall be conducted at the end of Course.

The paper shall carry 50 (Coding + Practical) marks.

Percentage of passing: - 35%

3. Notice regarding the Introduction date of the course & BOS

Department of Mathematics
Kisan Veer Mahavidyalaya, Wai
Date: 04/08/2023

Notice

All B.Sc. (Mathematics) students are hereby informed that our department will be conducting a "Certificate Course in Python for Numerical Computations". The course is scheduled to commence on 07/08/2023. The duration of the course is 30 hours, and the fee is 500/-.Interested students should enroll their names with Lab Assistant Shri Thombare Navnath in the Department of Mathematics.



Head
Department of Mathematics
Kisan Veer Mahavidyalaya
Wai - 412803

Janata Shikshan Sanstha's KISAN VEER MAHAVIDYALAYA, WAI

Department of Mathematics

Notice

The Meeting of the Board of Studies of Mathematics will be held on Monday 15th May 2023 at 11.45 am in the Department of Mathematics. The meeting will be chaired by Dr. S. R. Tate, Head, Department of Mathematics, Kisan Veer Mahavidyalaya, Wai. All the Members are advised to attend the meeting.

Sr. No.	Name	Designation	Position	Signature
1.	Dr. Shivaji Ramchandra Tate	Head Department of Mathematics Kisan Veer Mahavidyalaya, Wai	Chairperson	genis .
2.	Mrs. Vasanti Abhijeet Sawant	Assistant Professor Department of Mathematics Kisan Veer Mahavidyalaya, Wai	Member	Gent
3.	Mr. Sangram Suresh Nalavade	Head Department of Mathematics Yashavantrao Chavan Institute of Science, Satara (Autonomous)	Member	ote
4.	Dr. Rahul Popatrao Waghamare	Head Department of Computer Science (Entire) Yashavantrao Chavan Institute of Science, Satara (Autonomous)	Member	12 aghama
5.	Miss. Sneha Gharge	Solution Architect, QHills Technology Pvt. Ltd., Satara.	Member	Eshery

Agenda:

- To recommend to the College Development Committee through the Principal the introduction of new Certificate Course/s
- 2. To recommend to the College Development Committee through the Principal the discontinuation of earlier Certificate Course
- To recommend to the Principal the course syllabi, course structure & evaluation scheme of new Certificate Course
- 4. To recommend the reference books and other study material to be used for the study of the Course/s
- 5. Any other subject with the Permission of the Chair

Copy: 1. For signatures of all Members

2. Dr. S. R. Tate

Date: 12th May 2023



4. Syllabus and Objectives of the Course and Outcomes

Janata Shikshan Sanstha's

Kisan Veer Mahavidyalaya, Wai

Department of Mathematics

CERTIFICATE COURSE IN PYTHON FOR NUMERICAL COMPUTATIONS

SYLLABUS

➤ Introduction to Python:

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

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.

> Conditional Statements, Looping Statements and Control statements:

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

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

> Functions:

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

> Modules and packages in Python:

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

- 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.
- Numerical Solutions of Systems of linear algebraic equations: Gauss Elimination Method, LU Decomposition Methods
- > Roots of Equations: Bisection, Newton-Raphson Method
- Numerical Methods for The Solution of Ordinary Differential Equations: Euler's Method, Runge-Kutta Methods.

Recommended Book:

- Jaan Kiusalaas, Numerical Methods in Engineering with Python3, Cambridge University Press.
- 2. Amit Saha, Doing Math with Python, No Starch Press, 2015.
- Amit Sana, Bong and Aditya Kanetkar, Let Us Python, BPB Publication, 2019

Course Objectives:

- To understand the fundamentals of the Python programming language.
- > To get familiar with basic numerical computing concepts and methods.
- To develop the ability to write the Python program for the problem related their subjects using Numerical Methods.
- Student should be able to solve mathematical problems using Python language.

Course Outcomes:

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

- > Explain basic principles of Python programming language
- > Develop logical thinking
- Write programs in Python
- Enhance problem-solving skills through numerical analysis.
- > Develop skills in implementing numerical algorithms efficiently



5. List of enrolled students

Janata Shikshan Sanstha's

Kisan Veer Mahavidyalaya, Wai Department of Mathematics CERTIFICATE COURSE IN PYTHON FOR NUMERICAL COMPUTATIONS

STUDENT LIST (2023-24)

		Class: B.Sc. III
Sr. No.	Roll No	Name
1	59	KUMBHAR ANKITA ROHIDAS
2	69	YADAV PRATIK DATTATRAY
3	86	AWALE RUTUJA SANDESH
4	89	CHAVAN SNEHAL JAYWANT
5	93	PAWAR SAURABH SHIVAJI
6	94	CHIKANE SAISH SANTOSH
7	95	NIMBALKAR VISHAL MUKINDA
8	100	GAIKWAD AISHWARYA SURYAKANT
9	103	CHAVAN SHIVAM VIJAY
10	104	KAMATE RAJESHWARI SHIVAJI
		Class: B.Sc.II
11	18	CHAVAN ANURADHA KRUSHNAT
12	19	MAHAMUNI SONAL JITENDRA
13	20	JADHAV SAKSHI SACHIN
14	21	YADAV SANIKA BHANUDAS
15	22	JAGTAP ISHWARI JEETANDRA
16	31	BHOSALE VEDANT SURESH
17	33	SHELAR TEJAS SUDHIR
18	40	SHINDE TANISHKA SANJAY
19	41	DHAMAL HARSHADA AVINASH
20	42	MORE SANCHITA VIKAS
21	44	WADKAR PRANAV AJIT
22	47	SHINDE ABHAY DHANANJAY

Course Coordinator Department of Mathematics

Kisan Veer Mahavidyalaya, Wai

6. Attendance Sheets:

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

ATTENDENCE (2023-24)

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Head Brachematics
Department of Mathematics
Kisan Veer Mahavidyalaya
Wai - 412803

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

Janata Shikshan Sanstha's

KISAN VEER MAHAVIDYALAYA, WAI DEPARTMENT OF MATHEMATICS CERTIFICATE COURSE IN PYTHON FOR NUMERICAL COMPUTATIONS ATTENDENCE (2023-24)

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Class:	Class: B.Sc.II	II.								
11	18	CHAVAN ANURADHA KRUSHNAT	(Achara)	Osphar	@ Kohara	Okehan	Gleham	Carpan	aldwar	Colebago.
12	19	MAHAMUNI SONAL JITENDRA	Sachamer,	traimprotes.	Chamber 25	CHUNNIA LINE	Soft chamman!	Sachemann I.	A celebra malmy	Sachermun
13	20	JADHAV SAKSHI SACHIN	- KANTON		THE PARTY OF THE P	MARCHAN	THE PERSON	・自動・	る世間、	THE PARTY OF THE P
4	21	YADAV SANIKA BHANUDAS	(Experience	Grants	Malante)	Tropolary)	Android A	(FIGORY)	Gradus	西島
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Department of Mathematics Kisan Veer Mahavidyalaya Head U

Janata Shikshan Sanstha's

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KISAN VEER MAHAVIDYALAYA, WAI DEPARTMENT OF MATHEMATICS CERTIFICATE COURSE IN PYTHON FOR NUMERICAL COMPUTATIONS ATTENDENCE (2023-24)

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4	_	89 CHAVAN SNEHAL JAYWANT	-SEVOLVOND	Semouran	SCHOLLOW	- Merchan	-Serolada	Sebavara	Sememory	Separation	
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∞	-	100 GAIKWAD AISHWARYA SURYAKANT	Malley.	Railed.	Mailed.	Maile !	May Ly.	Moule	May w.	mented	
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Department of Mathematics Kisan Veer Mahavidyalaya Head Arr

Janata Shikshan Sanstha's
KISAN VEER MAHAVIDYALAYA, WAI
DEPARTMENT OF MATHEMATICS
CERTIFICATE COURSE IN PYTHON FOR NUMERICAL COMPUTATIONS
ATTENDENCE (2023-24)

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Ш	Name	KUMBHAR ANKITA ROHIDAS	YADAV PRATIK DATTATRAY	AWALE RUTUJA SANDESH	CHAVAN SNEHAL JAYWANT	PAWAR SAURABH SHIVAJI	CHIKANE SAISH SANTOSH	NIMBALKAR VISHAL MUKINDA	GAIKWAD AISHWARYA SURYAKANT	CHAVAN SHIVAM VIJAY	KAMATE RAJESHWARI SHIVAJI	П	CHAVAN ANURADHA KRUSHNAT	MAHAMUNI SONAL JITENDRA	JADHAV SAKSHI SACHIN	YADAV SANIKA BHANUDAS	JAGTAP ISHWARI JEET WIDRA	BHOSALE VEDANT SURESH	SHELAR TEJAS SUDHIR	SHINDE TANISHKA SANJAY	DHAMAL HARSHADA AVINASH	MORE SANCHITA VIKAS	WADKAR PRANAV AJIT	SHINDE ABHAY DHANANJAY
Class: B.Sc.III	Roll	59	69	98	8	93	94	95	100	103	104	Class: B.Sc.II	18	19	20	21	22	31	33	40	41 I	42 N	4	47 S
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Department of Mathematics Kisan Veer Mahavidyalaya Wai - 412803

7. Result of the Course:

Janata Shikshan Sanstha's Kisan Veer Mahavidyalaya Wai

Department of Mathematics

Certificate Course in Python for Numerical Computations Examination Marksheet (2023-24)

Date: 28/02/2024

			Coding (30)	Practical (20)	Total (50)
Sr. No.	Roll No	Name		15	42
1	18	CHAVAN ANURADHA KRUSHNAT	27		
2	19	MAHAMUNI SONAL JITENDRA	26	16	42
3	20	JADHAV SAKSHI SACHIN	28	17	45
4	21	YADAV SANIKA BHANUDAS	27	18	45
5	22	JAGTAP ISHWARI JEETANDRA	26	16	42
6	31	BHOSALE VEDANT SURESH	24	15	39
7	33	SHELAR TEJAS SUDHIR	24	14	38
8	40	SHINDE TANISHKA SANJAY	23	17	40
9	41	DHAMAL HARSHADA AVINASH	25	18	43
10	42	MORE SANCHITA VIKAS	28	17	45
11	44	WADKAR PRANAV AJIT	27	15	42
12	47	SHINDE ABHAY DHANANJAY	23	15	38
13	59	KUMBHAR ANKITA ROHIDAS	30	18	48
14	69	YADAV PRATIK DATTATRAY	25	15	40
15	86	AWALE RUTUJA SANDESH	30	19	49
16	89	CHAVAN SNEHAL JAYWANT	30	18	48
17	93	PAWAR SAURABH SHIVAJI	24	12	36
18	94	CHIKANE SAISH SANTOSH	23	14	37
19	95	NIMBALKAR VISHAL MUKINDA	24	13	37
	100	GAIKWAD AISHWARYA SURYAKANT	29	18	47
20	100	CHAVAN SHIVAM VIJAY	23	14	37
21			28	18	46
22	104	KAWATE KAJESITWAKI SIITVAJI			

Teacher Incharge

cmu Saward

V. A.)

Some

Head
Department of Mathematics
Kisan Veer Mahavidyalaya
Wai 412803



8. One Sample Certificate of the pass (prefer Color Copy)



Janata Shikshan Sanstha's

KISAN VEER MAHAVIDYALAYA, WAI



Certificate

This is to certify that **Miss. Awale Rutuja Sandesh** has completed successfully **Certificate Course in Python for Numerical Computations** conducted by Department of Mathematics, Kisan Veer Mahavidyalaya, Wai for the Academic year 2023-24 and obtained Grade "A".

Convener & Head
Department of Mathematics

Principal Kisan Veer Mahavidyalaya, Wai

9. Geo-tagged Photos (If Available)



