

## DEPARTMENT OF MATHEMATICS

Value Added Course (2023-24): **Mathematics for Data Science**

### Notice

All the Second and Final year students of B.Sc./ B.C.A./B.C.S are informed that the Department of Mathematics has introduced value added course entitled "Mathematics for Data Science" for the academic year 2023-24. This is the foundation course of Data Science and is useful for students who want to pursue a career in Data Science. So interested students Contact the Department of Mathematics. Lectures will start from 29/01/2024 in Room No. 39

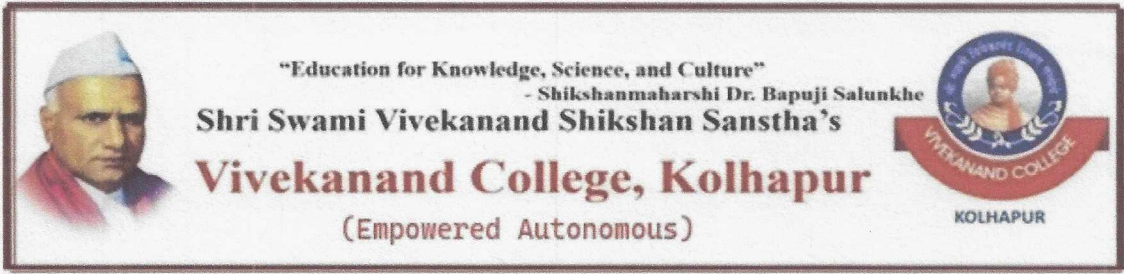
Co-ordinator: Ms. S. M. Malavi

Contact : 9324368036

*Prof. S. P. Thorat*  
(Prof. S. P. Thorat)  
**HEAD**  
DEPARTMENT OF MATHEMATICS  
VIVEKANAND COLLEGE, KOLHAPUR  
(EMPOWERED AUTONOMOUS)

*Prin. Dr. R.R. Kumbhar*  
(Prin. Dr. R.R. Kumbhar)  
PRINCIPAL  
VIVEKANAND COLLEGE, KOLHAPUR  
(EMPOWERED AUTONOMOUS)

B.Sc. III Ele - *Priligam*  
B.C.A. III - *Pk*  
B.Sc. III Botany - *Pk*  
B.Sc. III Zoology - *Priligam*  
B.Sc. III Com. Sci - *Priligam*  
B.Sc. III Chemistry - *Priligam*  
B.Sc. III Statistics - *Priligam*  
B.Sc. III Physics - *Priligam*  
B.Sc. III Com. Sci. (Entire) - *Pk*



**DEPARTMENT OF MATHEMATICS**

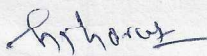
Date: 19/01//2024

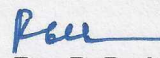
**Value Added Course (2023-24) : Mathematics for Data Science**

**Timetable**

Sr.	Date	Time	Name of the Teacher
1.	29/01/2024	9.30 A.M. to 11.30 A.M	Ms. S. M. Malavi
2.	30/01/2024	9.30 A.M. to 11.30 A.M	Mr. S. P. Thorat
3.	31/01/2024	9.30 A.M. to 11.30 A.M	Ms. A. D. Patil
4.	5/02/2024	9.30 A.M. to 11.30 A.M	Ms. S. M. Malavi
5.	6/02/2024	9.30 A.M. to 11.30 A.M	Mr. S. P. Thorat
6.	7/02/2024	9.30 A.M. to 11.30 A.M	Ms. A. D. Patil
7.	12/02/2024	9.30 A.M. to 11.30 A.M	Ms. S. M. Malavi
8.	13/02/2024	9.30 A.M. to 11.30 A.M	Mr. S. P. Thorat
9.	14/02/2024	9.30 A.M. to 11.30 A.M	Ms. A. D. Patil
10.	20/02/2024	9.30 A.M. to 11.30 A.M	Ms. S. M. Malavi
11.	21/02/2024	9.30 A.M. to 11.30 A.M	Mr. S. P. Thorat
12.	26/02/2024	9.30 A.M. to 11.30 A.M	Ms. A. D. Patil
13.	27/02/2024	9.30 A.M. to 11.30 A.M	Ms. S. M. Malavi
14.	28/02/2024	9.30 A.M. to 11.30 A.M	Mr. S. P. Thorat
15.	4/03/2024	9.30 A.M. to 11.30 A.M	Ms. A. D. Patil

**\*\*Exam will be conducted on 27 March 2024\***

  
**(Prof. S. P. Thorat)**  
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**PRINCIPAL**  
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# VIVEKANAND COLLEGE, KOLHAPUR (Empowered AUTONOMOUS)

## DEPARTMENT OF MATHEMATICS

### Value Added Course (2023-24)

#### Syllabus

### Mathematics for Data Science

**Course Outcomes:** After studying this course Student will able to

**C01:** Familiarize basic concept of set theory

**C02:** Learn conceptual variations while advancing from one variable to several variables in calculus.

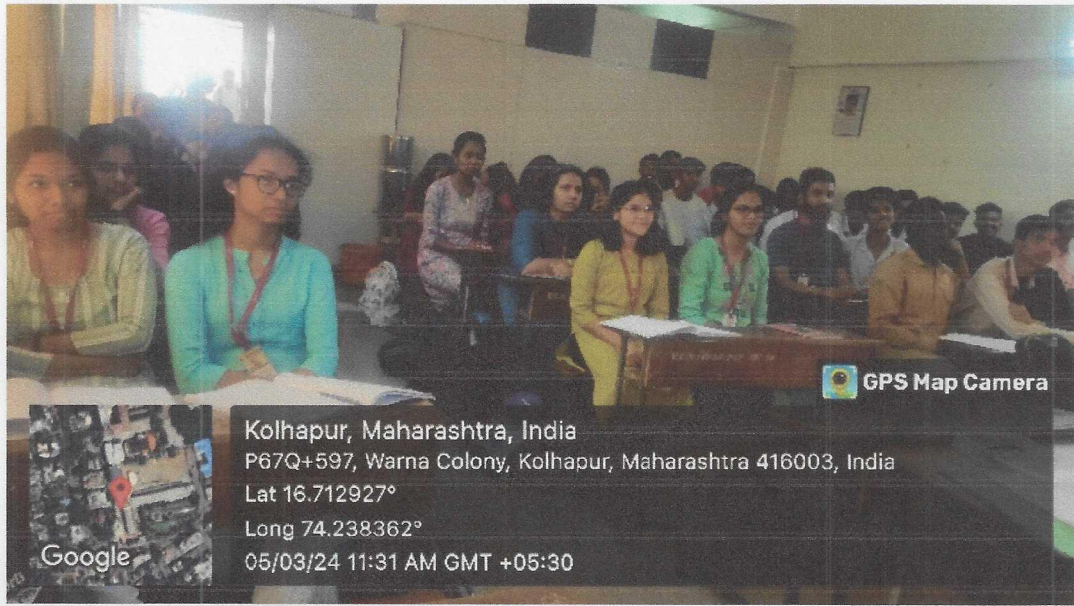
**C03:** Learn basic concepts of linear transformation, dimension theorem, matrix representation of a linear transformation, and the change of coordinate matrix

**C04:** Built computational programme by using graph theory

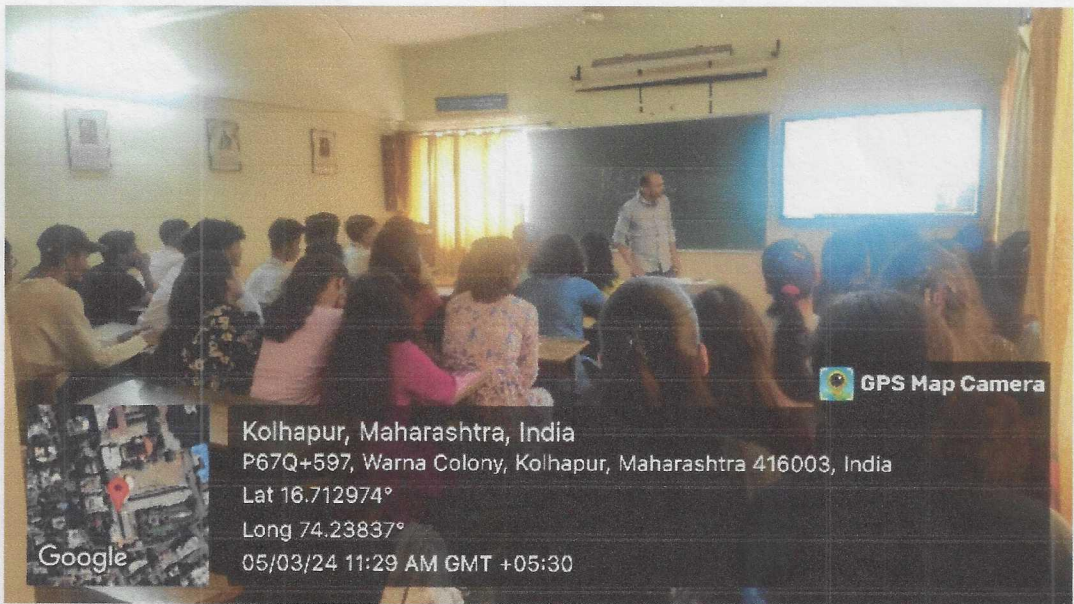
Unit	Content:	Hours allotted
1.	<b>SET THEORY:</b> 1.1. Natural numbers and Integers 1.2. Rational Numbers 1.3. Real Numbers 1.4. Sets 1.5. Relations 1.6 Functions 1.7 Inverse functions	06
2.	<b>Vector Spaces:</b> 2.1 Introduction to vector spaces 2.2 Some properties of vector spaces 2.3 Linear dependence and Linear independence. 2.4 Basis and dimension	06
3.	<b>Linear transformation:</b> 3.1 Linear transformation 3.2 Kernel and Images 3.3 The null space of a matrix 3.4 ordered bases and matrices	06
4.	<b>Multivariable functions:</b> 4.1 Partial derivatives 4.2 Limit 4.3 continuity 4.4 directional derivatives	06
5.	<b>Graph Theory:</b> 5.1 Graphs 5.2 Types of graphs 5.3 Degree of a vertex in an undirected graph 5.4 Indegrees and Outdegrees of a directed graph 5.5 Path and Cycle 5.6 Directed acyclic 5.7 Graph coloring	06



*Ashwari*  
HEAD  
DEPARTMENT OF MATHEMATICS  
VIVEKANAND COLLEGE, KOLHAPUR  
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Kolhapur, Maharashtra, India  
P67Q+597, Warna Colony, Kolhapur, Maharashtra 416003, India  
Lat 16.712927°  
Long 74.238362°  
05/03/24 11:31 AM GMT +05:30



Kolhapur, Maharashtra, India  
P67Q+597, Warna Colony, Kolhapur, Maharashtra 416003, India  
Lat 16.712974°  
Long 74.23837°  
05/03/24 11:29 AM GMT +05:30

*R. Tharur*  
**HEAD**  
**DEPARTMENT OF MATHEMATICS**  
**VIVEKANAND COLLEGE, KOLHAPUR**  
**(EMPOWERED AUTONOMOUS)**



VIVEKANAND COLLEGE, KOLHAPUR  
(EMPOWERED AUTONOMOUS)

Department Of Mathematics  
Value Added Course: 2023-24  
Mathematics for Data Science  
Student Attendance

Sr. No.	Name	Class	29/01/2024	30/01/2024	31/01/2024
1	Pratham Pradip Sawant	BSc-II	<u>P</u>	<u>P</u>	<u>P</u>
2	Aditya shurend mane	BSc-II	<u>A</u>	<u>A</u>	<u>A</u>
3	Sanika Santosh Dhumale	B.Sc-II	<u>S</u>	<u>S</u>	<u>S</u>
4	Revati Mahendra Jangam	BSc-II	<u>R</u>	<u>R</u>	<u>R</u>
5	Sharvari Kuldeep Patil	BSc-II	<u>S</u>	<u>S</u>	<u>S</u>
6	Shreya Shashikant Hirdekar	BSc-II	<u>S</u>	<u>S</u>	<u>S</u>
7	Samruddhi Sanjay Bhasale	BSc-II	<u>S</u>	<u>S</u>	<u>S</u>
8	Gnehal Madhukant Khopkar	BSc-II	<u>G</u>	<u>G</u>	<u>G</u>
9	Anushka sunil shete	BSc-II	<u>A</u>	<u>A</u>	<u>A</u>
10	Sujata keishnat Bhogam	BSc-II	<u>S</u>	<u>S</u>	<u>S</u>
11	Shridhar. S. Jadhav	B.Sc-II	<u>S</u>	<u>S</u>	<u>S</u>
12	Niraj Rajesh Warange	B.Sc-II	<u>N</u>	<u>N</u>	<u>N</u>
13	Ketan Girishkumar Tiwade	BSc-II	<u>K</u>	<u>K</u>	<u>K</u>
14	Gayatri Anil Awate	BSc II	<u>G</u>	<u>G</u>	<u>G</u>
15	Rohini. B. Karale	BSc. II	<u>R</u>	<u>R</u>	<u>R</u>
16	Sanika V. Chougule	BSc. II	<u>S</u>	<u>S</u>	<u>S</u>
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Student Attendance

Sr. No.	Name	Class	05/02/2024	06/02/2024	07/02/2024
1	Anushka Sunil shete	BSC-II	<u>Ashu</u>	<u>Ashu</u>	<u>Ashu</u>
2	Gayatri Anil Awate	BSC-II	<u>Gawate</u>	<u>Gawate</u>	<u>Gawate</u>
3	Sanjivani Rajaram Kamble	BSC-II	<u>Sanjivani Kamble</u>	<u>Sanjivani Kamble</u>	<u>Sanjivani Kamble</u>
4	snehal Madhukar Khopkar	BSC-II	<u>Snehal Khopkar</u>	<u>Snehal Khopkar</u>	<u>Snehal Khopkar</u>
5	Samruddhi Sanjay Bhasale	BSC-II	<u>Samruddhi</u>	<u>Samruddhi</u>	<u>Samruddhi</u>
6	Shridhar. S. Jadhav	B.Sc-IT	<u>Shridhar</u>	<u>Shridhar</u>	<u>Shridhar</u>
7	Jay Dilip Waghmare	B.Sc. II		<u>Jay Waghmare</u>	<u>Jay Waghmare</u>
8	Niraj Rajesh Wargange	BSC. II	<u>Niraj</u>	<u>Niraj</u>	<u>Niraj</u>
9	Pratham Pradip Sawant	BSC II	<u>Pratham</u>	<u>Pratham</u>	
10	Aditya shorad mane	BSC II	<u>Aditya</u>	<u>Aditya</u>	
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Sr. No.	Name	Class	12/02/2024	13/02/2024	14/02/2024
1	Warange Niraj Rejesh	BSC.IV	<u>Niraj</u>	<u>Niraj</u>	<u>Niraj</u>
2	Shridhar Jadhav	BSC.IV	<u>Shridhar</u>		
3	Avishkar Kamble	IT	<u>Kamble</u>	<u>Kamble</u>	<u>Kamble</u>
4	Gayatri Awate	BSC-II	<u>Awate</u>	<u>Awate</u>	<u>Awate</u>
5	Sharayu Sutar	BSC II	<u>Sutar</u>	<u>Sutar</u>	<u>Sutar</u>
6	snehal khopkar	BSC II	<u>khopkar</u>	<u>khopkar</u>	<u>khopkar</u>
7	Anushka shete	BSC II	<u>shete</u>	<u>shete</u>	<u>shete</u>
8	Sanjivani Kamble	Bsc II	<u>Sanjivani Kamble</u>	<u>Sanjivani Kamble</u>	<u>Sanjivani Kamble</u>
9	Janhavi Mane	Bsc II	<u>Mane</u>	<u>Mane</u>	<u>Mane</u>
10	krushna Petkar	Bsc II	<u>KPetkar</u>	<u>KPetkar</u>	<u>KPetkar</u>
11	Pratiksha Shinde	B.Sc II	<u>Pratiksha Shinde</u>	<u>Pratiksha Shinde</u>	
12	samsuddhi Bhasale	B.Sc II	<u>Bhasale</u>	<u>Bhasale</u>	<u>Bhasale</u>
13	Jay Waghmare	B.Sc II	<u>Waghmare</u>	<u>Waghmare</u>	<u>Waghmare</u>
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Department Of Mathematics

Value Added Course: 2023-24

Mathematics for Data Science

Student Attendance

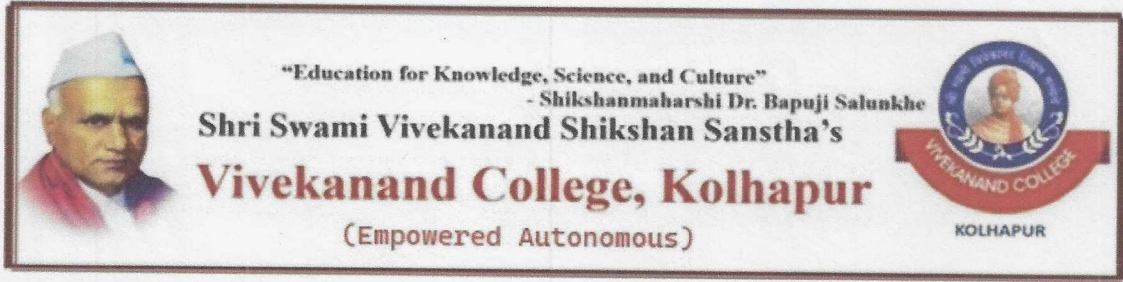
Sr. No.	Name	Class	20/02/2024	21/02/2024	26/02/2024
1	Anushka shete	BSC-II	<u>Anushka</u>	<u>Anushka</u>	<u>Anushka</u>
2	Banjivani Kamble	Bsc-II	<u>Banjivani Kamble</u>	<u>Banjivani Kamble</u>	<u>Banjivani Kamble</u>
3	Snehal Khopkar	Bsc-II	<u>Snehal Khopkar</u>	<u>Snehal Khopkar</u>	<u>Snehal Khopkar</u>
4	Jay Waghmare	B.Sc.-II	<u>Jay Waghmare</u>	<u>Jay Waghmare</u>	<u>Jay Waghmare</u>
5	Avishkar Kamble	-/-	<u>Kamble</u>	<u>Kamble</u>	<u>Kamble</u>
6	Gayatri Awate	BSc-II	<u>G</u>	<u>Gayatri</u>	
7	Shridhar. Jadhav	B.Sc-II		<u>Shridhar</u>	
8	Krushna Petkar	BSc.II	<u>KRPetkar</u>	<u>KRPetkar</u>	<u>KRPetkar</u>
9	Janhavi Mane	Bsc II	<u>Jane</u>	<u>Jane</u>	<u>Jane</u>
10	Gayatri Awate	"			<u>Gayatri</u>
11	Ganxuddhi S. Bhosale	BSc II	<u>Ganne</u>	<u>Ganne</u>	<u>Ganne</u>
12	Sharayu P Sutar				<u>Sharayu</u>
13	Pratiksha T. Shinde	B.Sc II			<u>Pratiksha</u>
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Department Of Mathematics  
Value Added Course: 2023-24  
Mathematics for Data Science  
Student Attendance

Sr. No.	Name	Class	27/02/2024	28/02/2024	04/03/2024
1	Anushka Sunil shete	BSc-II	<del>Ashete</del>	<del>Ashete</del>	<del>Ashete</del>
2	Krushna C. Petkar	BSc-II	KCPetka.	KCPetka	KCPetkar
3	Snehal Madhukar Khopte	BSc-II	<del>Snehal Khopte</del>		
4	Sanjivani Rajaram Kamble	BSc-II	<del>Sanjivani Kamble</del>	<del>Sanjivani Kamble</del>	<del>Sanjivani Kamble</del>
5	Sansuddhi Sanjay Bhasale	BSc-II	Bhasale	Bhasale	Bhasale
6	Avishkar C. Kamble	-II-	<del>Kamble</del>	<del>Kamble</del>	<del>Kamble</del>
7	Shridhar. S. Jadhav	-II-	<del>Jadhav</del>		
8	Sharayu P Sutar	-II-	<del>Sutar</del>	<del>Sutar</del>	<del>Sutar</del>
9	Janhavi. S. Mane	-II-	Mane	Mane	Mane
10	Gayatri A. Awate	BSc-II	Awate		
11	Jay Dilip Waghmare	B.Sc-II	Waghmare	Waghmare	Waghmare
12	Pratiksha T. Shinde	-II-	Shinde	Shinde	Shinde
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**DEPARTMENT OF MATHEMATICS**

**2023-2024**

**Report: Value Added Course**

- 1. Name of Department** : **Mathematics**  
**2. Name of Organized Activity** : **Value Added Course**  
**(Mathematics for Data Science)**  
**3. Date/ Duration** : **29/01/2024 – 04/03/2024.**  
**6. Aims and Objectives** : 1. To acquire basic knowledge of Mathematics for data science.  
2. To introduce higher concepts mathematics for data science  
**7. No. of beneficiaries** : **Total = 16**

Students	Male	10
	Female	06

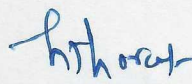
**6. Expenditure & funding agency:** Nill.

**7. Brief description:** On the behalf of Mathematics department Value added course (Mathematics for Competitive Examination) was arranged during year 2023-2024 for students of graduation of all streams. Under this course 25 lectures were arranged on syllabus of course. Faculty of mathematics of Vivekanand college Kolhapur, conducted the lectures during 29/01/2023 – 04/03/2024 at 09: 30 AM to 11: 30 AM. Students from arts, commerce and science attended this course and thankful to organiser Ms. A.D. Patil (Assistant prof., Vivekanand College, Kolhapur (Empowered Autonomous). Exam was conducted on 19/04/2024 to which out of 16 students 13 students appeared and all passed the exam.

**8. Outcomes** : 1. Developed basic concepts of Mathematics.  
2. Students acquired knowledge of mathematics for data science.

**9. Photos** : Enclosed

**10. Signatures of coordinator/ organizer:** Ms. A. D. Patil.

  
**HEAD**  
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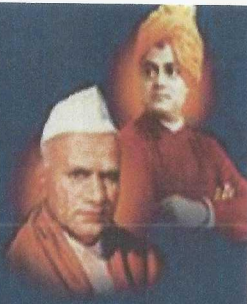
Shri Swami Vivekanand Shikshan Sanstha, Kolhapur.

# VIVEKANAND COLLEGE, KOLHAPUR

(Empowered Autonomous)

Affiliated to Shivaji University

NAAC Reaccredited "A" | College with Potential for excellence | ISO 9001 : 2015



Certificate of completion of Value added course for academic year 2023-2024

**"Mathematics for Data Science"**

Organised by

Department Of Mathematics

## CERTIFICATE

This is to certify that, Ms. Shete Anushka Sunil std. B.Sc. II of **Vivekanand Kolhapur (Empowered Autonomous)** has completed Value added course for academic year 2023-2024 named **"Mathematics for Data Science"** held from February 2024 to May 2024 organized by Department of Mathematics, Vivekanand College, Kolhapur (Empowered Autonomous).

Ms. A.D. Patil.

Co-Convenor

Assistant Prof. of Department Mathematics,  
Vivekanand College,  
Kolhapur (Empowered Autonomous)

Mr. S. P. Thorat

Convenor

Head of Department Mathematics,  
Vivekanand College,  
Kolhapur (Empowered Autonomous)

Dr. R. R. Kulkarni

Principal

Vivekanand College,  
Kolhapur (Empowered Autonomous)