College Research & Innovation Cell Activities

Academic Session: 2021-22

Members of the cell

Dr Kumari Priyanka
(Convener),
Dept. of Mathematics

Dr Vikas Sharma,
Dept. of Hindi

Dr Jyoti Sharma,
Dept. of Hindi

Dr Neetu Rani,
Dept. of Mathematics

Dr Kiran Bamel,
Dept. of Botany

Dr Prabuddh Kumar Mishra,
Dept. of Geography

Dr Devender Singh Meena,
Dept. of Botany

Dr Priyanka Verma,
Dept. of Physics

Ms Preetika Dhawan,
Dept. of Physics

Dr Ravindra Singh
Dept. of Physics

Vision, Mission and Objectives

Vision

- Research and development is the backbone of Education. Research provide opportunities for collaboration, sharing of knowledge, and innovative practices.

Mission

- The Cell aims to develop strategies to foster research collaborations within the faculty, across faculty and institutes/organizations and with agencies outside the college.
- The Cell conducts several programmes such as seminars, workshops and training sessions and motivates the faculty members to undertake research activities and supervise M. Phil and Ph.D. programmes.
- The Cell encourages faculty members of the college to publish their works in leading good quality journals and to present their research findings on the national and international platforms through seminars and conferences.
- The cell facilitates and supports the faculty and students to undertake research projects from various funding agencies.

Objectives

- The main objective of the Cell is to nurture research culture among the faculty members and students by encouraging them to pursue research-based activities in newly emerging and challenging areas.

Status of Minor Research Projects sanctioned in the Academic year 2020-21

- MRP/2020/0001 and MRP/2021/0008 are complete
- For rest extension has been given as per request and rules

MRP/2020/0001

Yield Estimation of Baby Corn (Zea mays L.) using Mathematical Modelling

MRP/2020/0001

Project Investigators

Dr. Kiran Bamel, Department of Botany, Shivaji College, DU

Dr. Neetu Rani, Department of Mathematics, Shivaji College, DU

Students

B.Sc. (Hons) Botany - Sara Gahlot (III year), Rishta Nandini Singh (III year), Sumit Kumar Pathak (II year)

B.Sc. (Hons) Mathematics - Abhinav Shukla (III year), Nandini Singh (III year)

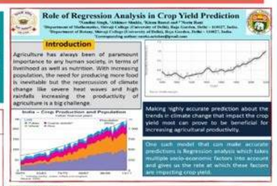
INTRODUCTION

The proposed work is an outcome of a long-term collaboration between a botanist and a mathematician. The proposed work will exemplify the excellent real-life applications of mathematical modelling along with experimental investigations to a horticultural problem which is most relevant to the current horticultural and economical needs of developing countries. Maize (Zea mays L.) is the third most important cereal crop. It finds versatile use as food, forage and as livestock feed. The experimental site, a field in Aterna village of Sonipat district was selected and the work of field visit was started immediately after the sanction of the project.

After that, data was collected from the same field in three visits. After harvesting, the plant material was collected for the laboratory work and the experimental data was collected. Secondly, along with field and experimental work, literature review was done and one review article was prepared and communicated for publication. Presently, the article is under review. Apart from this, two papers were also presented in an international conference.

PARTICIPATION IN INTERNATIONAL CONFERENCES

Along with field and experimental work, literature review was done and one review article was prepared and communicated for publication. Presently, the article is under review. Apart from this, two papers were also presented in an international conference.



Certificates

Work Progress

After extensive literature survey, some research gaps were observed in modelling methods for crop yield estimation. Keeping in mind all these gaps, generalized form of models were proposed in the communicated review article. From field work to lab work data has been collected and analysis of data is in progress.

Complete

MRP/2020/0002

Low cost experiment setup for the determination of dilectric constant using parallel plate capacitor technique

MRP/2020/0002

PRINCIPAL INVESTIGATORS

Dr Arunvir Singh, Department of Physics
Dr Harsh Yadav, Department of Physics

STUDENTS INVOLVED

Neha, Shourya Gautam, Himanshu Chauhan, Kumar Chandranshu, Dev

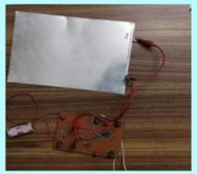
OBJECTIVE

1. Measure the dielectric constant of solid dielectric of different materials and of different thickness.
2. Measure the dielectric constant of liquid dielectric and its application to measure the level of liquid in a tank.
3. Error calculations

INNOVATIONS

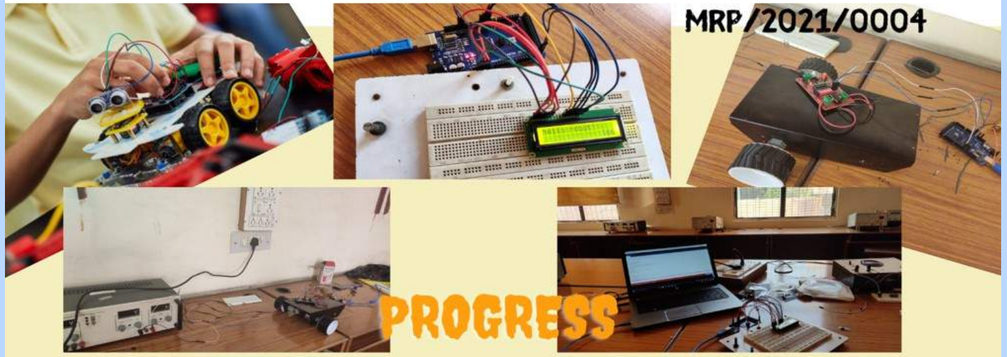
Low cost set up will be built for accurate dielectric measurement to be used in undergraduate laboratories and small scale commercial applications.

NEW OBSERVATIONS



- First part of experimental setup: Testing of the power supply has been performed for the fabrication of the set up of measuring the dielectric constant using op-amp based circuit.
- The fluctuation in output voltage of constant power supply is checked by measuring the ripple factor of fabricated power supply. The ripple factor was measurement by taking the trace on oscilloscope. The next part of the fabrication will planned to fabricate the complete setup for dielectric measurement.
- New design on the basis of literature survey for dielectric measurement setup will be planned.

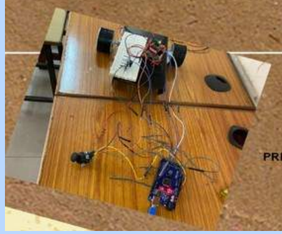
MRP/2021/0004



SALIENT FEATURES

WIRELESS OPERATION & CONTROL + LIVE STREAMING

Featured with Arduino Technology and Joystick steering interfaced with sensors for ambience data collection by the Robo–car with real time monitoring



STUDENTS INVOLVED:
HIMANSHU YADAV, SIDHANT, BHAVESH,
ALOK KUMAR, SOURABH SHESHMA, ROHIT TOMAR

PRINCIPAL INVESTIGATORS:
PREETIKA DHAWAN (ASSISTANT PROFESSOR, DEPT. OF PHYSICS)
BHARTI (ASSOCIATE PROFESSOR, DEPT. OF PHYSICS)

MRP/2021/0005

MRP/2021/0007

File No: MRP/2021/0007

MICRO RESEARCH PROJECT
SHIVAJI COLLEGE, UNIVERSITY OF DELHI

CLIMATE CHANGE AND ITS IMPACT ON AGRICULTURE:
A MICRO LEVEL STUDY OF TWO VILLAGES IN HARYANA

Investigator I: Dr. Tejbir Singh Rana, Associate Professor, Department of Geography, Shivaji College, University of Delhi. Email: ranatejbir@gmail.com
Investigator 2: Dr. Bharat Ratnu, Assistant Professor, Department of Geography, Shivaji College, University of Delhi. Email: bharatratnu2010@gmail.com
Students Involved in Project: Khushi Kaushik, Rozina Akhtar, Khushwant Kakran, Manoj Majhi, Tamanna, Nikita

INTODUCTION

Climate and agriculture are related to each other and as such climate change parameters like rainfall, temperature, humidity, wind etc. influences the agricultural productivity. Agricultural production is for a large part still dependent on weather and climate despite the impressive advances in agricultural technology over the last half a century.


Discussion with the officiers of soil health card deparetment


Students conducting primary survey


Farmland of Kultana

OBJECTIVES

- To examine the magnitude and direction of climate change.
- To elucidate the implication of climate change on cropping system.
- To analyze the consequences of climate change on agriculture society.

METHODS AND PROCEDURE

- Methodology: Formal Questionnaire and Participatory Target Group Approach
- Time period: February 2021 to February 2022
- Sample Size: 25 respondents (from each village)
- Data collection tools: Climatic parameters – Meteorological Departments
- Respondents' data – Interviews/Questionnaires

February 28, 2021 — Commencement of Project	March 3, 2021 — Brief discussions and strategies about project
March 12, 2021 — Conducted Pre Primary Survey in Village KULTANA	March 19, 2021 — Discussions about field survey & questionnaire
June 18, 2021 — Interpretation of acquired secondary data	Weekly discussion about the Progress, Half Yearly Report
October 15, 2021 — Conducted survey in Village BASAUDI	November 15, 2021 — Discussions about the field visit and data updation

ANALYSIS

COMPARISON BETWEEN TWO VILLAGES

DIFFERENCES

BASIS	BASAUDI	KULTANA
Water quality	Non saline	Brackish
Ground water Level	45-50ft	2-3 ft.
Irrigation sources	Ground water	KCB Drain
Major crops	Rice, cotton, wheat	Bajra, Jawar, Mustard
Water availability	abundant	Scarcity
Drinking water source	Groundwater	Paid tankers


Visiting the nearby waterbodies


Examining the soil

ANNUAL PRECIPITATION

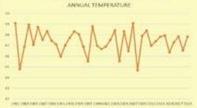
KULTANA VILLAGE,ROHTAK

BASAUDI VILLAGE, SONIPAT

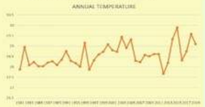

Rise in the water level in the farmlands of Kultana

ANNUAL TEMPRATURE

KULTANA VILLAGE, ROHTAK



BASAUDI VILLAGE, SONIPAT




Students in conversation with the farmers of Basaudi

CONCLUSION

The agricultural sector's rapid deterioration is tremendously detrimental to the overall community. As a result, it is sensible and critical to investigate the reasons that are contributing to the decline and to comprehend their causes, as well as a plethora of other issues such as water scarcity, heat waves, changing climate, increasing agricultural demand, and other contemporary issues. We're continuing working on the various findings and perspectives that this research has provided.

SIMILARITIES

Agrarian Society
- Drastic & rapid changes in cropping pattern.
- Shifted to monoculture
- Changes in pattern of precipitation, humidity &
- Migration of youth


Entire team in field visit

MRP/2021/0008

Genome-wide mutation/SNP Analysis, Biological Characteristics, and Pan-India Prevalence of SARS-CoV-2 Variants of Concern

MRP/2021/0008

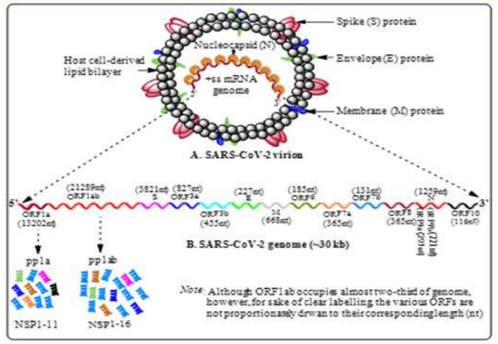
Nimita Kant*, Shamashree Samanta, Ishika Panchal, Abhishek Pandey, Lagna Ghatak, Adyasha Rout and Jitendra Kumar Chaudhary*

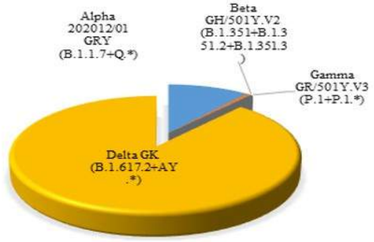
Department of Zoology, Shivaji College, University of Delhi, New Delhi-110027

Structure of SARS-CoV-2 virion morphology.
The SARS-CoV-2 virion is around 100 nm in diameter. The lipid bilayer possesses three structural proteins, namely Spike (S), Membrane (M), and Envelope (E). The Nucleocapsid (N) encapsidates RNA genome (30 kb) of SARS-CoV-2.

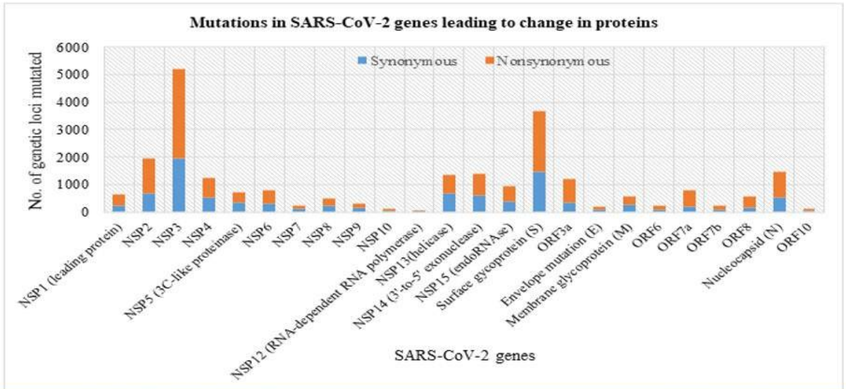
Prevalence of SARS-CoV-2 VOCs across the India upto 31/10/2021

India has maximum Prevalance of delta VOC followed by Alpha, beta and gamma.





Prevalance of SARS-CoV-2 VOCs across India upto 31/10/2021)
(https://www.gisaid.org/hcov19-variants/)



SARS-CoV-2 genes/ORFs displaying synonymous and non-synonymous mutations.
Various SARS-CoV-2 genes undergo differential rate of mutation, of which, some are advantageous for virus imparting them upper hand over the host immunity.

Complete

MRP/2021/0009

Synthesis and characterization of multifunctional ZnO nanoparticles for biomedical, piezoelectric and ferroelectric applications

Department of Zoology* & Department of Physics**

Shivaji College, University of Delhi, Delhi–110027, India

File No.: MRP/2021/0009

Nipun Sareen*, Mitali Kapoor**, Kabeer Kumar**, Khushboo Singhal*, Yashika Kataria*, Dr. Nidhi Tyagi** , Dr. Deepika Yadav*

Aim of Project

- In this project work, we have aimed to synthesize the pure and doped ZnO nanoparticles (NP) for piezoelectric, ferroelectric and biomedical applications.

Literature Survey

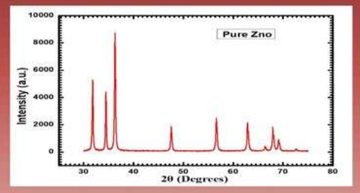
Pure Zno nanoparticles synthesis

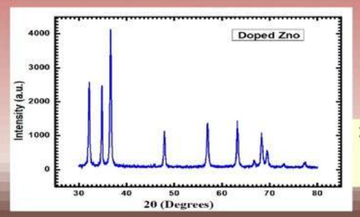
- Pure Zinc oxide (ZnO) nanoparticles have been synthesized in the laboratory using low cost wet-chemical precipitation method.

Doped Zno nanoparticles synthesis

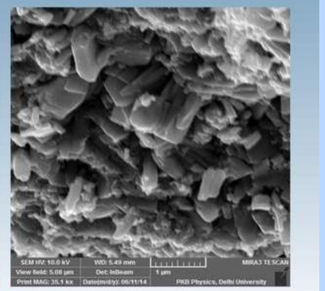
- 5 mol % metal doped ZnO nanoparticles were synthesized by wet-chemical precipitation method.

X- Ray Diffraction for Pure and Doped Zno





TEM Image for Pure Zno NPs



Applications

- Piezoelectric
- Dielectric
- Ferroelectric
- Antibacterial
- Food packaging
- Anticancer

Acknowledgements

We are thankful to the College Research Cell & Principal, Shivaji College for the grant and support.

References

- S. Goel, B. Kumar, Journal of Alloys and Compounds, 816, 5 March 2020, 152491

Minor Research Project: 2021-22

- The fresh call to invite minor research project proposals under the Intramural Research Scheme of the college for the academic session 2021-2022 was made on 24th December, 2021 and the call was open till 20th January, 2022 which was further extended till 30th January, 2022 and finally extended till 10th February, 2022.

- Total five research proposals were received. The proposals, which were in-order were sent for two independent blind review by eminent experts of national and international repute under scientific social responsibility of an academician.

- Based on the recommendation of experts the decision for financial assistance to the projects was taken. All five research proposals were approved. Following due procedures and necessary approvals from competent authority the Approval Letter, Sanction Order and the Date of Start of the project were issued to all five approved proposals by the cell.

- In this academic session, the **total number of beneficiaries** from this scheme are **36**. Out of which, **teacher beneficiaries** are **08** and **student beneficiaries** are **28**.

The details of recommended Minor Research Project for academic session 2021-2022

S. No.	File No.	Principal Investigators	Title of the Project	Student Details	Sanction Order Details & Date of Start (DOS)
1	MRP/2022/0001	Dr Renu Baweja	Disseminating Antimicrobial Resistance in Food Chain using Blended Learning Approach	1.SudhanshuShukla (20/06034), B. Sc. (H) Biochemistry 2. Aantra Rao (20/06012), B. Sc. (H) Biochemistry 3. Vanshika Bansal (20/06022) B. Sc. (H) Biochemistry 4. Karishma (20/06005) B. Sc. (H) Biochemistry 5. Gungun Saini (20/06038) B. Sc. (H) Biochemistry 6. Sparsh Aggarwal (21/06032) B. Sc. (H) Biochemistry	SH/Admn/142/22 DOS: 16.03.2022
2	MRP/2022/0002	Dr Prabhavati Dr Vandana Katoch	Role of Medicinal Plant for Sustainability of Environment	1. Sumit Kumar Pathak (20/09024) B.Sc. (H) Botany 2. Sarthak (21/09008) B.Sc. (H) Botany 3. Palak Gupta (21/09048) B.Sc. (H) Botany 4. Saniya (21/10056) B.Sc. (H) Chemistry 5. Anurag (21/10052) B.Sc. (H) Chemistry	SH/Admn/142/22 DOS: 16.03.2022

3	MRP/2022/0003	Mr Sumit Singh Raheja Ms Shruti Goyal	Effectiveness of Nudges in Waste Management Policy Making	1. Akanksha Srivastava (20/28098) B. A. (H) Economics 2. Kinshuk Taneja (20/28111) B. A. (H) Economics 3.Aparna Rana (20/28109) B. A. (H) Economics 4. Shaily Sengar (20/28030) B. A. (H) Economics 5. Parth Jain (20/28090) B. A. (H) Economics	SH/Admn/142/22 DOS: 16.03.2022
4	MRP/2022/0004	Dr Sunita Singh	Interplay of Genetic and Lifestyle Risk Factors in Cardiovascular Disease	1. Tinilung Libang (20/06035) B.Sc. (H) Biochemistry 2. Sony Sharma (21/06050) B.Sc. (H) Biochemistry 3. Disha Chandeliya (21/06046) B.Sc. (H) Biochemistry 4. Himani Gautam (21/06045) B.Sc. (H) Biochemistry 5. Kajal Rawat (21/06018) B.Sc. (H) Biochemistry 6. Nitika Kumari (21/06042) B.Sc. (H) Biochemistry 7. Bhumika Choudhary(21/06043) B.Sc. (H) Biochemistry	SH/Admn/142/22 DOS: 16.03.2022
5	MRP/2022/0005	Ms Anshu Chopra Ms Nikita Gupta	Impact of online education on the schooling choices: A study of slums in Delhi	1. Khushi Bhatia (20/28025) B. A. (H) Economics 2. Abhishek Raj (20/28108) B. A. (H) Economics 3. Divyanshi Pathak (20/28097) B. A. (H) Economics 4. Devanshi Thakur (20/28107) B. A. (H) Economics 5. Saloni Agarwal (20/28061) B. A. (H) Economics	SH/Admn/142/22 DOS: 16.03.2022

Events

National level Webinar entitled "Art of academic writing: A systematic approach" organized on 04.09.2021

RESEARCH & INNOVATION CELL

SHIVAJI COLLEGE

NAAC Accredited 'A' Grade

(University of Delhi)

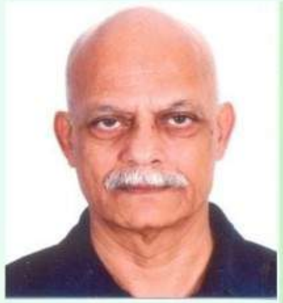
Organizes

National Level Webinar on

Art of Academic Writing: A systematic approach

(Under the aegis of IQAC)

SPEAKER



Mr Yateendra Joshi
Academic Publication Trainer

Mr Yateendra Joshi is among only 30 editors worldwide and the only one in India certified as Diplomate editor by the Board of Editors in the Life Sciences, USA. He is a member of the council of European Association of Science Editors, a member of the editorial board of Information Design Journal, and an Associate Fellow of the Communications Research Institute, Melbourne.

Mr Yateendra has been editing technical documents for more than 30 years and also teaching scientists and academicians how to write, publish and present for more than 15 years. He has worked as scientist in ICAR and in different capacities in WISE, TERI, ICRISAT.

DATE: Sept. 4, 2021 | TIME: 10:00 AM | PLATFORM: ZOOM

REGISTRATION: FREE | Register at: https://forms.gle/Nc15tQ5qo2tr2YaSA

Participants will be awarded E-Certificate

Organizing Committee

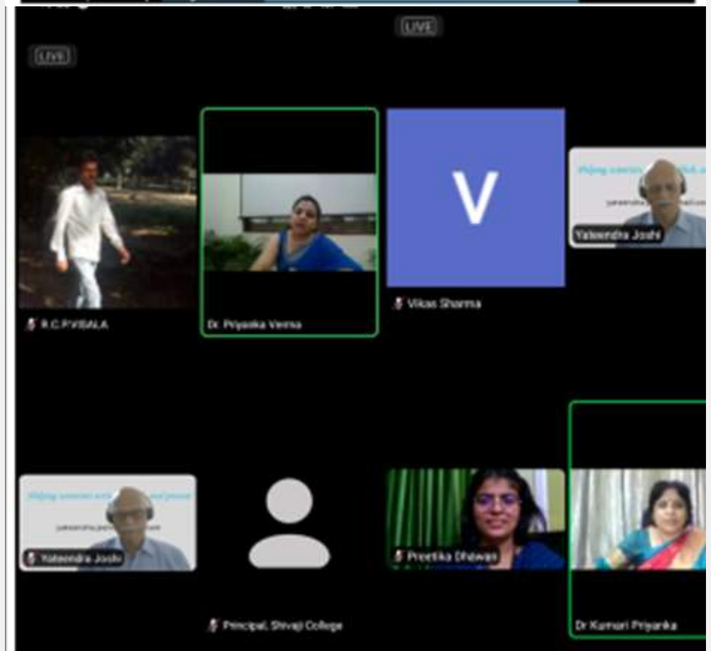
Dr Prabuddh Kr. Mishra, Dr Vikas Sharma, Dr Kiran Bamel, Dr Neetu Rani, Dr Devender S. Meena, Dr Priyanka Verma, Ms Preetika Dhawan

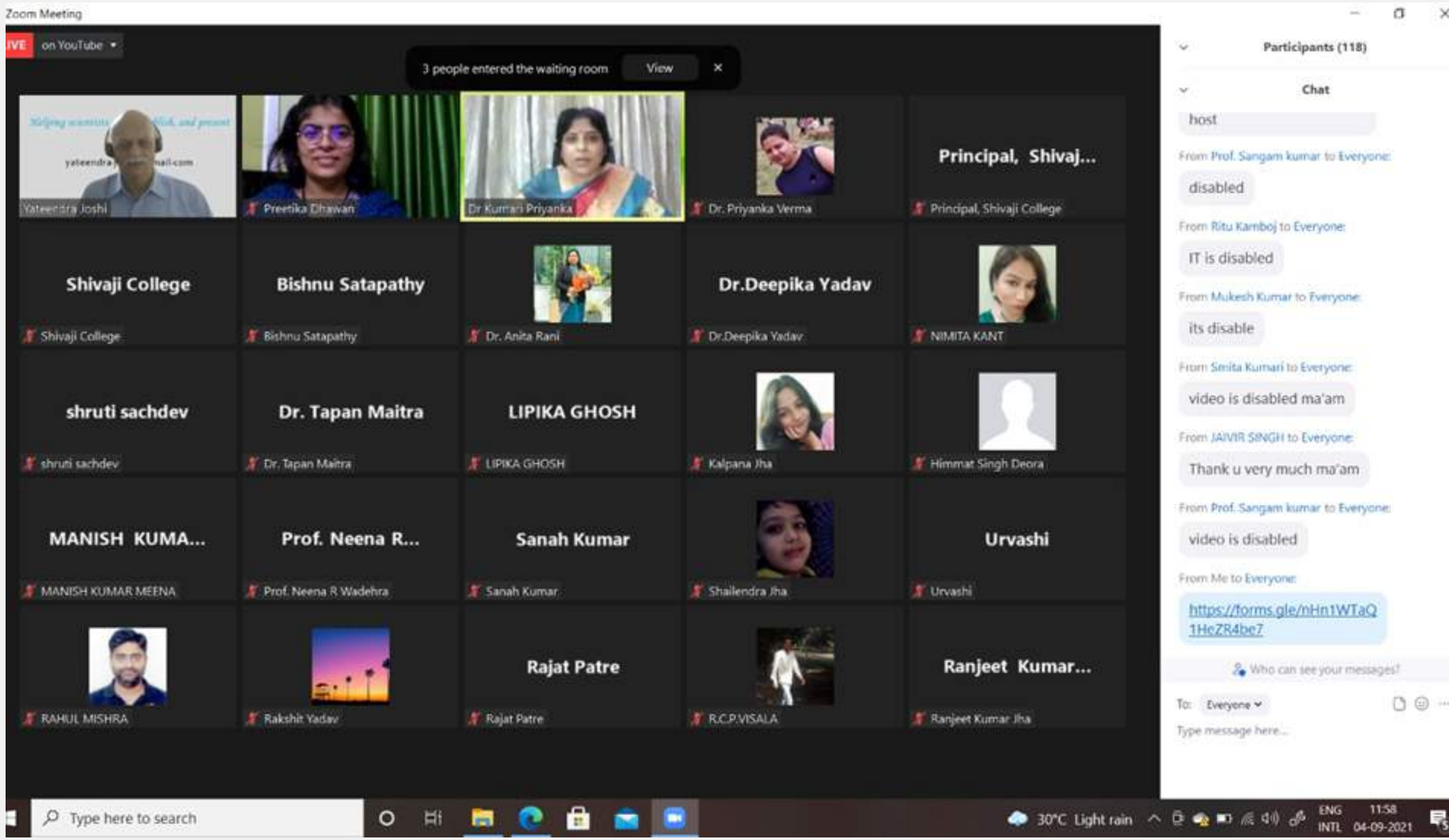
Dr Kumari Priyanka	Prof. Rashmi Wardhan	Prof. Shiv Kumar Sahdev
Convener	IQAC Co-ordinator	Patron | Principal

Report on "Art of Academic Writing: A systematic Approach"

- The webinar was organized on September 4, 2021.
- 165 participants from all over the country participated in the webinar. The webinar was also streamed live on YouTube channel of the College.
- The resource person was Mr Yateendra Joshi, Academic Publishing Trainer
- The feedback received was encouraging.


Principal, Shivaji College's screen


LIVE
R.C.P.VISALA
Dr. Priyanka Verma
Vikas Sharma
Yateendra Joshi
Yateendra Joshi
Preetika Dhawan
Principal, Shivaji College
Dr Kumari Priyanka


Zoom Meeting
LIVE on YouTube
3 people entered the waiting room
View
Yatendra Joshi
Preetika Dhawan
Dr Kumari Priyanka
Dr. Priyanka Verma
Principal, Shivaj...
Principal, Shivaji College
Shivaji College
Shivaji College
Bishnu Satapathy
Bishnu Satapathy
Dr. Anita Rani
Dr.Deepika Yadav
Dr.Deepika Yadav
NIMITA KANT
shruti sachdev
shruti sachdev
Dr. Tapan Maitra
Dr. Tapan Maitra
LIPIKA GHOSH
LIPIKA GHOSH
Kalpana Jha
Himmat Singh Deora
MANISH KUMA...
MANISH KUMAR MEENA
Prof. Neena R...
Prof. Neena R Wadehra
Sanah Kumar
Sanah Kumar
Shailendra Jha
Urvashi
Urvashi
RAHUL MISHRA
Rakshit Yadav
Rajat Patre
Rajat Patre
R.C.P.VISALA
Ranjeet Kumar...
Ranjeet Kumar Jha
Participants (118)
Chat
host
From Prof. Sangam kumar to Everyone:
disabled
From Ritu Kamboj to Everyone:
IT is disabled
From Mukesh Kumar to Everyone:
its disable
From Smita Kumari to Everyone:
video is disabled ma'am
From JAIVIR SINGH to Everyone:
Thank u very much ma'am
From Prof. Sangam kumar to Everyone:
video is disabled
From Me to Everyone:
https://forms.gle/nHn1WTaQ1HeZR4be7
Who can see your messages?
To: Everyone
Type message here...
Type here to search
30°C Light rain
ENG INTL
11:58
04-09-2021

Annual festival of the cell entitled “SRIJAN-2022” organized on 13.04.2022

COLLEGE RESEARCH & INNOVATION CELL

SHIVAJI COLLEGE

(University of Delhi)

Cordially invites all students and teachers to its annual festival

SRIJAN-2022

Programme Schedule

Inauguration
10:00 am - 10:30 am

Invited talk entitled
"Understanding Research & Publication Ethics"
by the Chief guest
10:30 am - 11:30 am

Presentation of Minor Research Projects Sanctioned in the academic session 2020-2021
11:30 am – 01:00 pm & 02:00 pm – 04:00 pm

Validatory function
04:00 pm – 04:30 pm

Chief Guest

Prof. (Dr) Ramesh C. Gaur
Director, National School of Drama (NSD),
Dean (Academics) IGNCA,
Ministry of Culture, Government of India,
Member UNESCO IAC, MoW Programme &
UNESCO global task force on indigenous languages

April 13, 2022

10:00 am onwards

College Auditorium

For any query contact:
crc@shivaji.du.ac.in

Convener
Dr Kumari Priyanka

Organizing committee
Dr Vikas Sharma, Dr Jyoti Sharma, Dr Neetu Rani, Dr Kiran Bamel, Dr Prabuddh Kumar Mishra, Dr Devender Singh Meena, Dr Priyanka Verma, Ms Preetika Dhawan

Principal
Prof. (Dr) Shiv Kumar Sahdev

Report on "SRIJAN-2022"

- The event was attended by 60 participants, which includes faculty and students of Shivaji College.
- The talk by Prof. (Dr) Ramesh C. Gaur was highly motivating and encouraging for the students as well as teachers.
- The students presented the research findings in various minor research projects sanctioned in the academic session 2021-2022.
- Some were subject specific and some were interdisciplinary in nature. The students were motivated by the research findings presented by their fellow friends. The feedback vindicate that most of the participants got benefited from the event.












THANK YOU!

Contact us at: crc@shivaji.du.ac.in