

MEMORANDUM OF UNDERSTANDING (MOU)

Between



K.R. MANGALAM UNIVERSITY
EDUCATION FOR LIFE
(Recognized by UGC and a member of AIU)

K.R. MANGALAM UNIVERSITY
Sohna Road, Gurugram (Haryana)-122103

Gargi College

and



GARGI COLLEGE
(UNIVERSITY OF DELHI)

Siri Fort Road, New Delhi-110049 (India)

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

MEMORANDUM OF UNDERSTANDING

The Memorandum of Understanding is executed on 17th day of June, 2022

BETWEEN

K.R. Mangalam University, Sohna Road, Gurgaon - 122103 (Delhi NCR Region), a University established under the Haryana Private Universities Act 2006 (Amended 08 of 2013) and under section 2(f) of UGC Act, 1956 wherein empowered to award degrees, as specified under section 22 of the UGC Act 1956, through its Registrar, presently Gp. Capt. P. Mahajan duly authorized to enter into and sign an MOU on behalf of K.R. Mangalam University (hereinafter referred to as KRMU) PARTY OF THE FIRST PART.

AND

Gargi College (University of Delhi) with its campus at Siri Fort Road, New Delhi, 110049, India, through its Registrar/ Principal, duly authorized in this regard to sign an MOU on behalf of Gargi College, PARTY OF THE SECOND PART.

The expression KRMU and Gargi College shall, mean and include the Institutions/Organizations, their successors, appointees, assignees etc

1. SCOPE OF THIS AGREEMENT

The scope of collaboration on academic and research activities in this Memorandum of Understanding includes the following categories:

- (i) Academic and Research collaboration in the areas of mutual interest. It is expected that this collaboration will in due course lead to collaborative research projects, joint publications, joint workshops and seminars, etc.
- (ii) Scholarly information: materials and publications, Faculty development programs


2. Research Collaboration

Faculty from both Institutions will collaborate in the joint research in disciplines of mutual interest. All such joint research activities will be governed by the terms as given below:

- (i) Proposals for collaborative research work under this Memorandum will be submitted with the prior approval of the Head of each institution, or his/her nominee.


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- (ii) Each institution will nominate one of its members as its representative in charge of the cooperative programme. Individual programme of work under this Memorandum will be jointly planned and conducted by the nominees of both parties.
- (iii) Procedures followed in any activity under MOU will be reviewed and approved by designated authorities of both parties.
- (iv) Neither K.R. Mangalam University nor Gargi College (University of Delhi) will be held responsible for any liability to the party, and neither party shall be required to purchase any insurance against loss or damage to any property due to activities to which this agreement relates.
- (v) Every collaboration will have its own agreement / contract which addresses issues such as IPR, funding pattern, usage policies of research facilities, disclosure of information etc.

3. Faculty Collaboration

- (i) Pursuant to the agreement for academic exchange, K.R. Mangalam University and Gargi College (University of Delhi) may invite faculty to deliver guest lectures, organize FDPs and engage in joint guidance of research projects according to the terms mutually agreed by both parties.
- (ii) Participants will be subjected to the rules and regulations of the host institution.
- (iii) The scope and duration of the collaboration may be amended and/or extended through the joint agreement further with the consent and approval of both the parties.

4. Commencement, renewal, termination and amendment

- (i) This MoU will come into force upon affixing of the signatures of the representatives of the partner institutions and will remain in effect for one (1) year. This MoU may be renewed upon its expiry, with the agreement of both the partner institutions. If either partner institution wishes to terminate the MoU at the end of one year, it must notify the other institution not less than two months prior to the expiry of the MoU.


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- (ii) This MoU or its renewal and the actions taken under it may be reviewed at any time. Modifications may be made by mutual agreement and any amendment or extension to the agreement may be formalized by the exchange of letters between the two parties.

For K.R. Mangalam University

For Gargi College (University of Delhi)



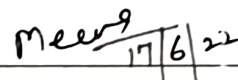
Gp. Capt. P. Mahajan
Registrar,
K.R. Mangalam University
Sohna Road, Gurugram-122103
Haryana - 122001

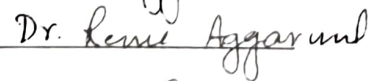

17/06/22

Prof. Promila Kumar
Principal,
Sirifort Road, New Delhi-110049

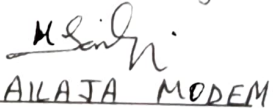
Dated: 17th June, 2022

Dated: 17th June, 2022

1. WITNESS 
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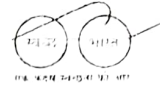
1. WITNESS 
Dr. Ramesh Aggarwal

2. WITNESS 
17/6/22

2. WITNESS 
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Sohna Road, Gurugram, (Haryana)



K.R. MANGALAM UNIVERSITY

THE COMPLETE WORLD OF EDUCATION

(Est. Under the Govt. of Haryana private Universities Act No. 2006 under section 21 of the UGC Act 1956)

CERTIFICATE

This is to certify that the dissertation entitled " First principle study of the double perovskites $\text{Cs}_2\text{GeNiCl}_6$ for spintronics application" is a Bonafide record of the work done by **Ms. Divya (Roll No. 2103910005)** student of M.Sc. Physics under the supervision of Dr. Ruby Jindal (K.R. Mangalam University) and Co-supervision of Dr. Alka Garg (Gargi College, DU) and submitted to K. R. Mangalam University in partial fulfilment for the award of the degree of Master of Science.

Date: June, 2023

Dean

Meena

Prof. (Dr.) Meena Bhandari

Dean, SBAS

K. R. Mangalam University, SBAS

Sohna Road, Gurugram

K. R. Mangalam University

Sohna Road, Gurugram

Haryana 122103

Supervisor

Dr. Ruby Jindal

Assistant Professor, SBAS

K. R. Mangalam University

Sohna Road, Gurugram

Co-Supervisor

Alka

Dr. Alka Garg

Associate Professor

Gargi College, Delhi University

Jindal

Registrar

K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

Meena



Est. under the Act of Haryana University, 1987 (Act No. 10 of 1987)
THE COMPLETE WORLD OF EDUCATION

CERTIFICATE

This is to certify that the dissertation entitled " **Ab initio study of the double perovskites Cs₂GeCoCl₆ for spintronics application**" is a Bonafide record of the work done by **Ms. Nikki Bhardwaj (Roll No. 2103910004)** student of M.Sc. Physics under the supervision of Dr. Ruby Jindal (K.R. Mangalam University) and Co-supervision of Dr. Alka Garg (Gargi College, DU) and submitted to K. R. Mangalam University in partial fulfillment for the award of the degree of Master of Science

Date: June, 2023

Dean

Prof. (Dr.) Meena Bhandari

Dean, SBAS

K. R. Mangalam University
Sohna Road, Gurugram
Haryana 122105

Supervisor

Dr. Ruby Jindal

Assistant Professor, SBAS

K. R. Mangalam University

Sohna Road, Gurugram

Co-Supervisor

Dr. Alka Garg

Associate Professor

Gargi College, Delhi University

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Sohna Road, Gurugram, (Haryana)

Report on FDP-Research Techniques in Science and Technology (July 18th-23rd, 2022)

Target Group: Faculty and Researchers

Resource Person: Faculty across universities (National and International)

Conveners: Dr Ruby Jindal (SBAS, KRMU), Dr Nidhi Gaur (SBAS, KRMU) and Dr Archana Tripathi (Assistant Professor) Gargi College, Delhi University .

Duration: July 18-23, 2022

Venue: ONLINE.

Introduction

A Six days Faculty Development Programme on "Research Techniques in Science and Technology" was successfully organized by School of Basic and Applied Sciences in collaboration with Gargi College, University of Delhi, from 18th July, Monday to 23rd July, Saturday, 2022. The faculty development programme had the prime objective to impart knowledge pertaining to scientific inquiry and to integrate qualitative and quantitative approaches in research. Knowledge of applied research tools and methodology along with the use of software helps in integrating research and practice. Faculty and researchers at times, find themselves technically constrained while promoting research due to lack of sufficient understanding of statistical analysis and techniques. Hence, to ensure more skillful and scientific data analysis as well as high quality research output from faculty a formal training is required. This 6 days -FDP aimed at honing the teaching and research skills of faculty, researchers and trainers, which was successfully met by the informative lecture of the Experts.

Objectives

Specific objectives which were targeted in this FDP were:


- To familiarize participants with experimental and theoretical techniques in research.
- To provide an opportunity for the participants to interact and learn from experts.
- To mentor participants on publishing their research in reputed journals.

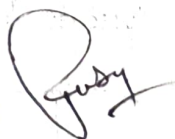

Number of participants:

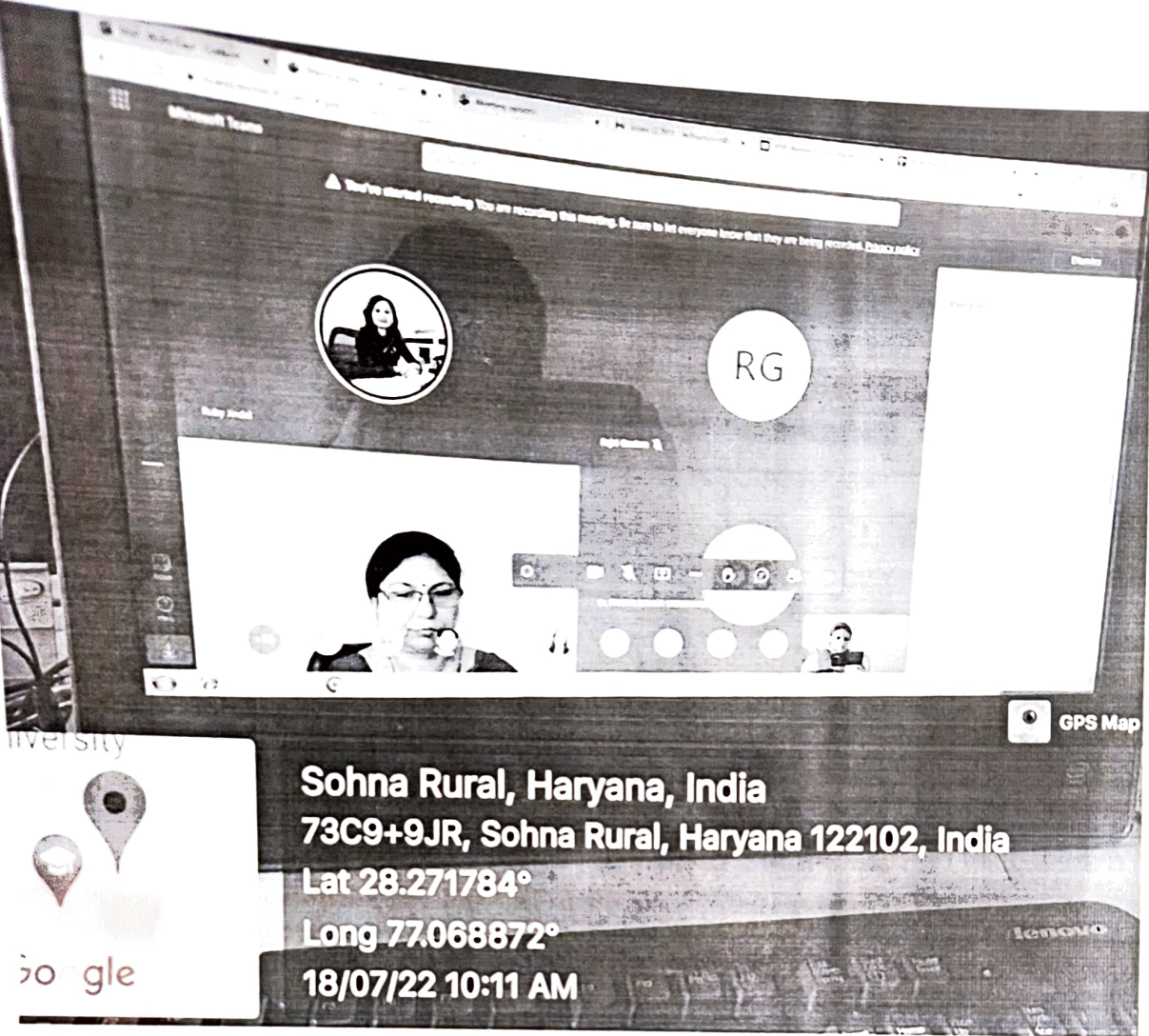
In all 100 participants registered for the FDP from the different institutions.

Themes of FDP

- Experimental Research Techniques
- Artificial intelligence in Research
- Simulations and computational Techniques


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18/07/22 10:11 AM



Sohna Rural, Haryana, India
73C9+9JR, Sohna Rural, Haryana 122102, India
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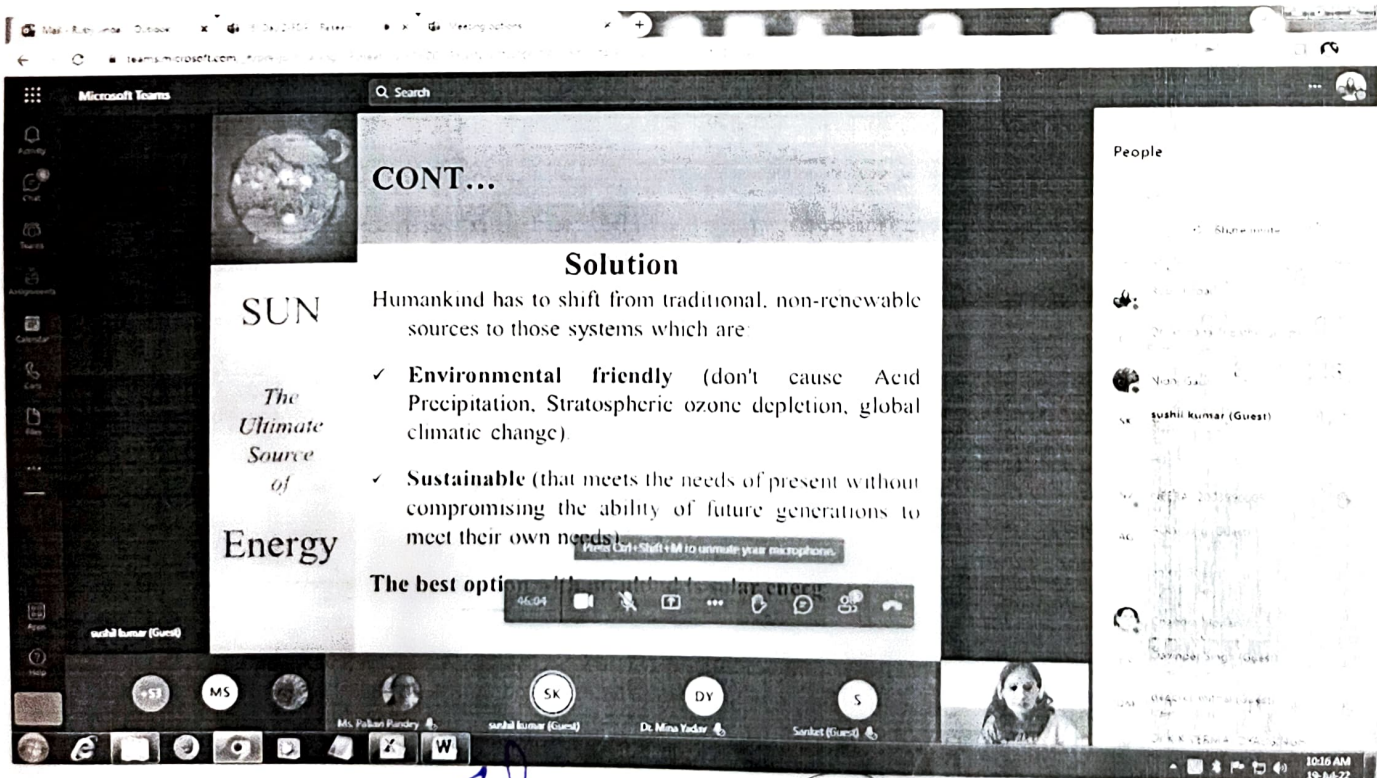
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Day 2

Resource Persons: Following were the key resource persons in Day 2 of the FDP:

| | | |
|-----------------------------|-----------------|---|
| Day-2 | 10:00am-11:00am | Technical Session-2: Prof Sushil Kumar- Evacuated tubes solar collectors |
| 19 th July, 2022 | 11:30am-12:30pm | Technical Session-3: Dr. Umesh Gupta: Research Methodology |

In the first session, Dr. Ruby Jindal, welcomed Prof Sushil Kumar, Deptt. of Physics, Hansraj College, University of Delhi. The talk will mainly focus on the techniques to enhance the performance of solar collectors and also briefly discuss the latest design modification for the performance enhancement. The techniques which have been used for heat transfer enhancement in SWHS, their advantages and region of applications was also discussed. Dr. Nidhi Gaur, handled the queries of participants and delivered the vote of thanks.

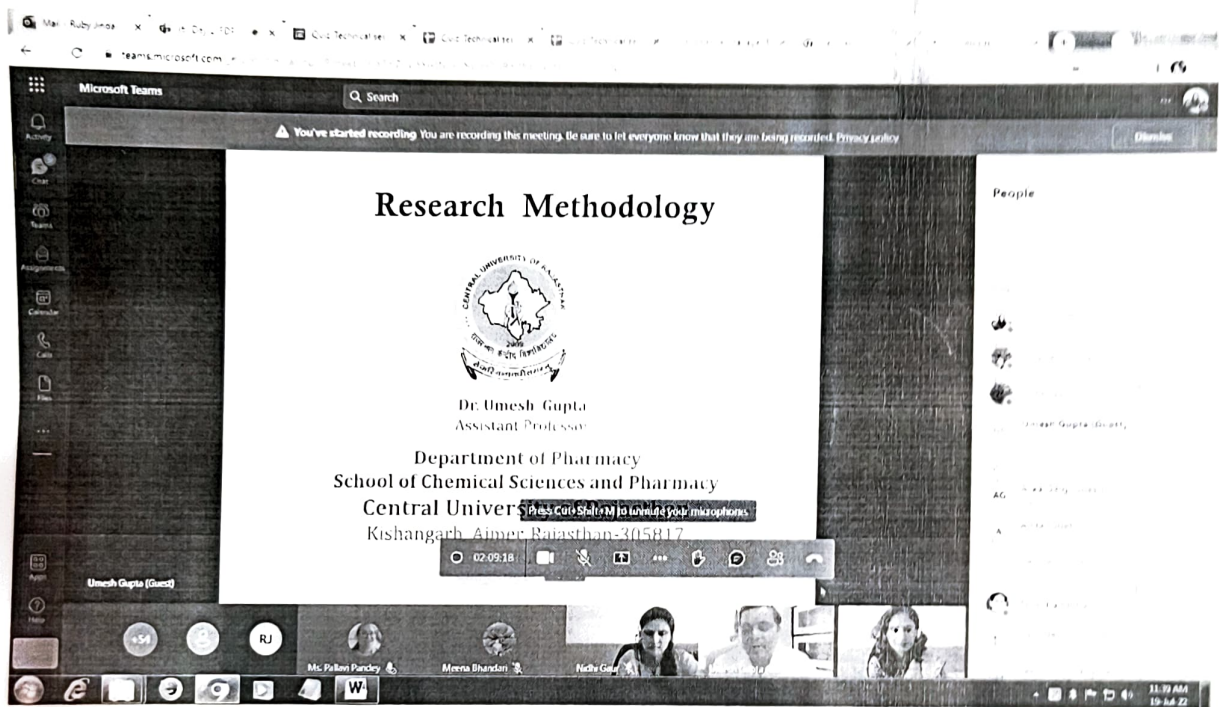


Jindal
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Ruby

Umesh

In the Second session of Day 2, Dr. Nidhi Gaur, Convener of the FDP welcomed Dr. Umesh Gupta, Associate professor, Central university of Rajasthan. The talk was focused on multiple reasons and aspects behind a successful research completion, writing a good research paper and its importance in communicating any idea to the scientific community. The speaker covered all the requisites in detail which are extremely important for academic research writing. Dr. Ruby Jindal concluded the session by presenting the vote of thanks



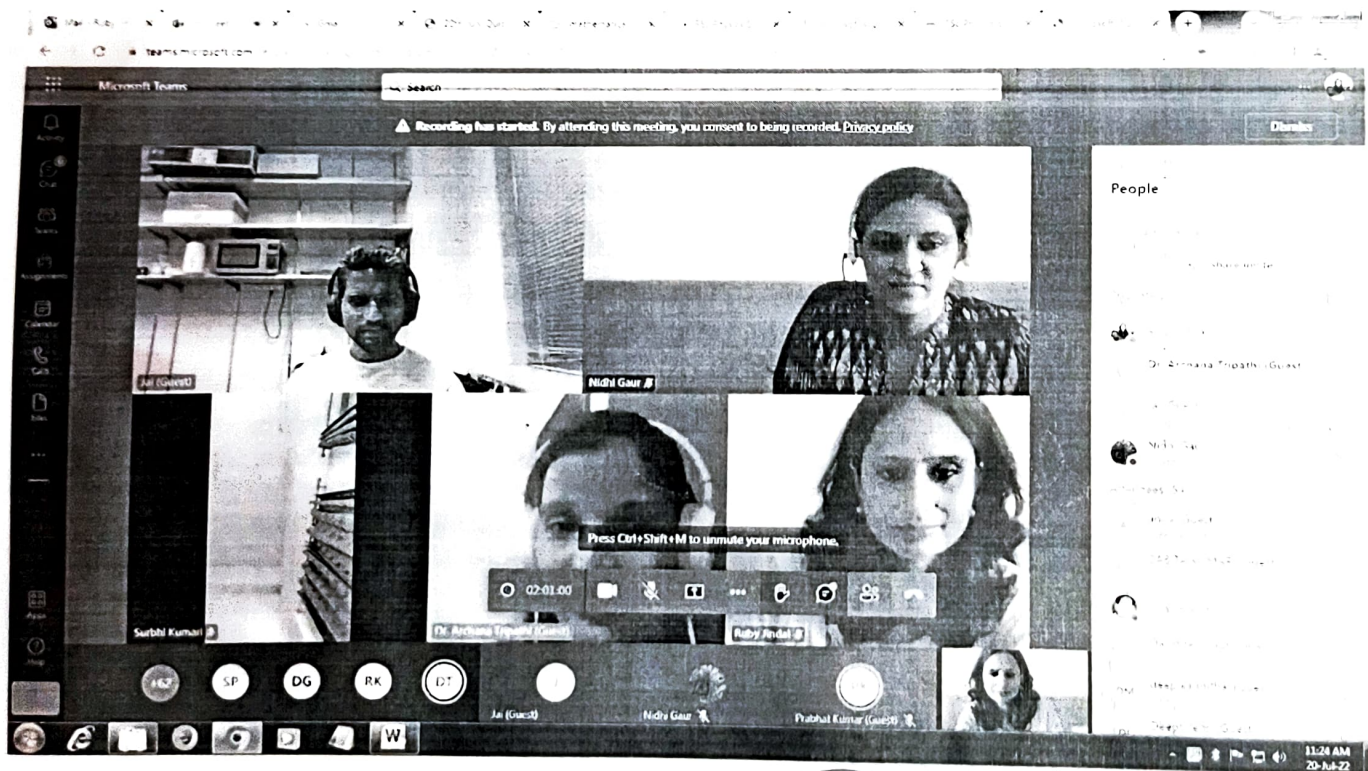
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DAY-3

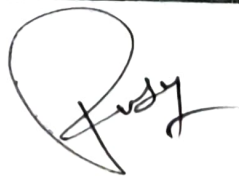
Resource Persons: Following were the key resource persons in Day 3 of the FDP:

| | | |
|--|-----------------|---|
| Day-3 20 th July, 2022 | 10:00am-11:00am | Technical Session-4: Dr. Jai Verdhhan Chauhan : Analysing the X - Ray data for Black hole binaries to understand the physics around a black hole |
| | 11:30am-12:30pm | Technical Session-5: Dr. Supreeti Das: Applications of nonlinear dynamics in Physics |

In the first session, Dr Archana Tripathi welcomed Dr. Jai Verdhhan Chauhan as a speaker. The talk focused on analyzing the X-ray data for black hole binaries in order to gain more insight about the exploration of black holes and their existence. It was indeed interesting to know about the space, galaxies and treat for the eyes to have glimpses of the mesmerizing our outer space. The session was very well taken by the audience and gracefully concluded by Dr Archana Tripathi after the question answer round.




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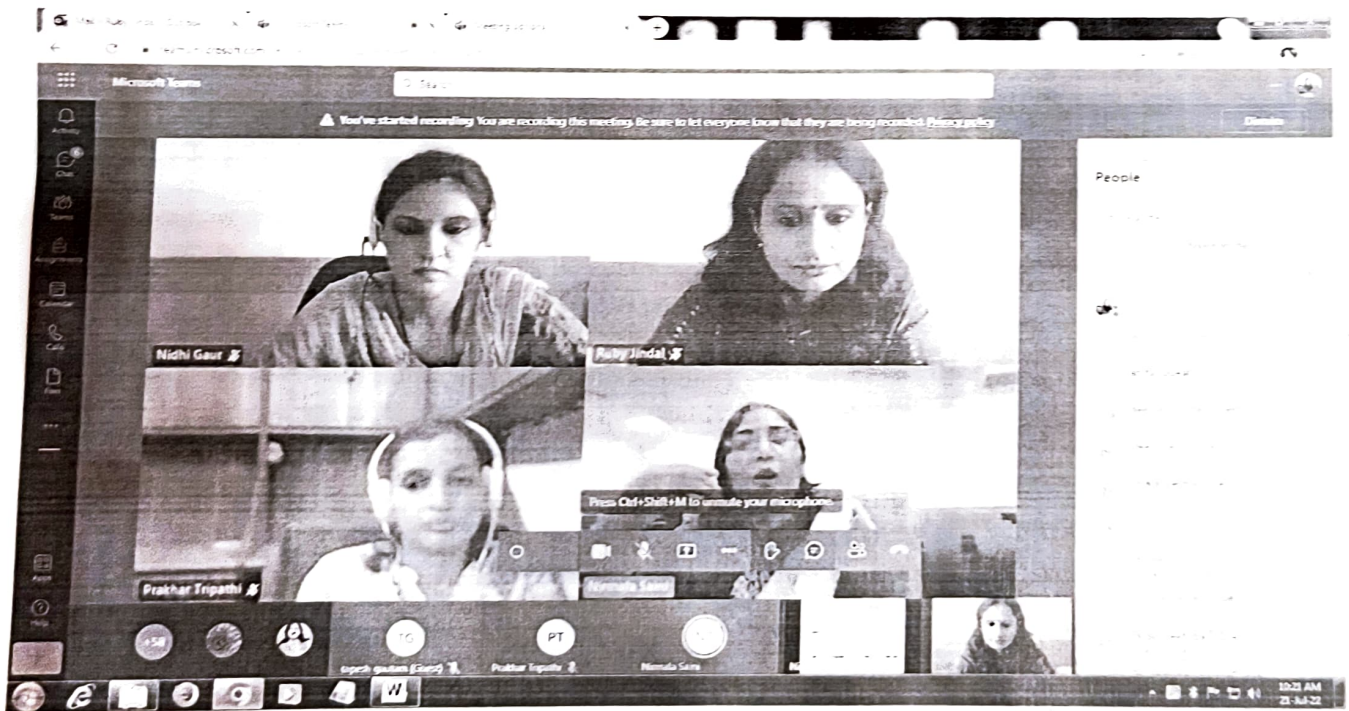


DAY-4

Resource Persons: Following were the key resource persons in Day 4 of FDP:

| | | |
|---|-----------------|---|
| Day-4 21 st July, 2022 | 10:00am-11:00am | Technical Session-6: Dr. Nirmala Saini: Optics Based Biometric Security systems. |
| | 11:30am-12:30pm | Technical Session-7: Dr. Alka Garg: XRD: Versatile tool for structural determination |

In Session I of Day 4 Dr. Ruby Jindal welcomed Dr. Nirmala Saini, Associate Professor, University of delhi. The session “Optics Based Biometric Security systems.” was focused on the applications of biometric security systems in Physics. The session elaborately covered the topic starting from the very conceptual basics of security systems, cryptography and discussing the real world applications which is of cardinal importance in today’s world. The session came to an end with vote of thanks given by Dr. Nidhi Gaur.




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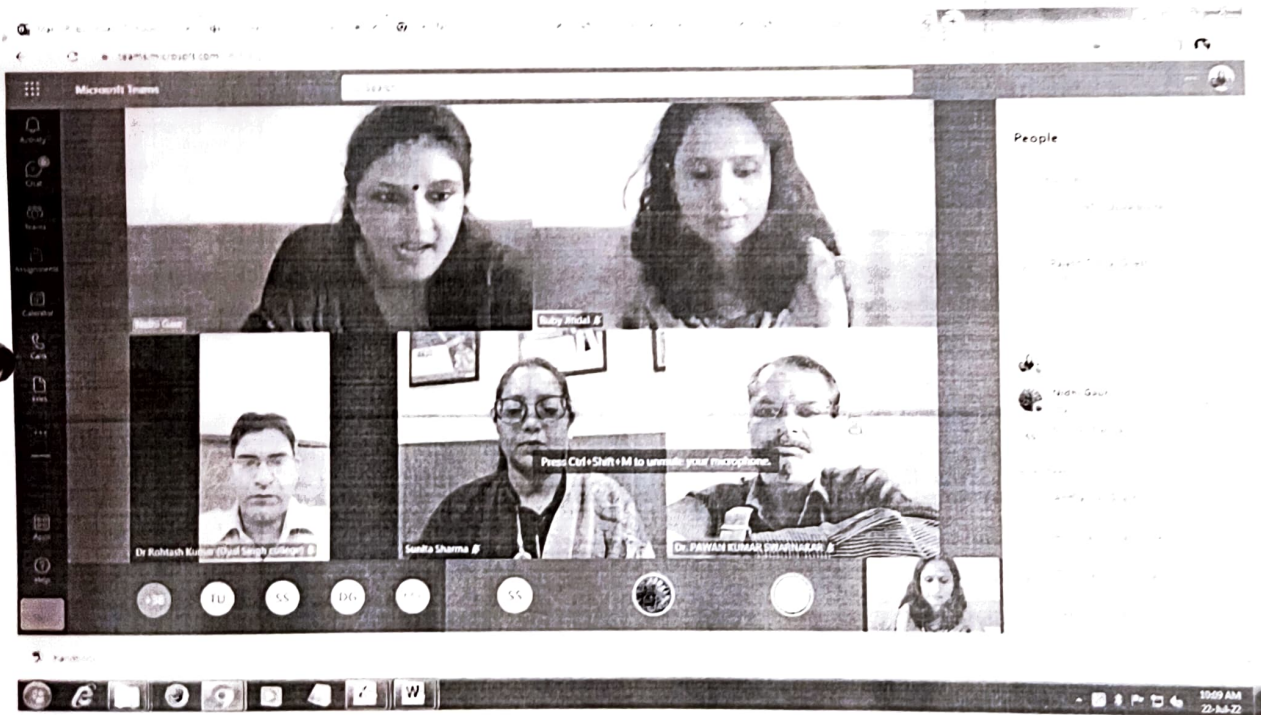


DAY-5

Resource Persons: Following were the key resource persons in Day 5 of FDP:

| | | |
|--|-----------------|---|
| Day-5 22 nd July, 2022 | 10:00am-11:00am | Technical Session-8: Dr. Sunita Sharma - Electron Microscopy- A Boon for Material Morphology |
| | 11:30am-12:30pm | Technical Session-9: Dr. Seema Raj: Hands on Zotero as Reference manager |

Dr. Ruby Jindal welcomed Dr. Sunita Sharma Assistant Professor, NCU on the fifth day in the first session. The talk was on the construction and working of SEM, discussing about its usage in detail. It also covered basics of optical microscopy. The session concluded with active participation by the audience in question-answer round and vote of thanks by Dr Nidhi Gaur.



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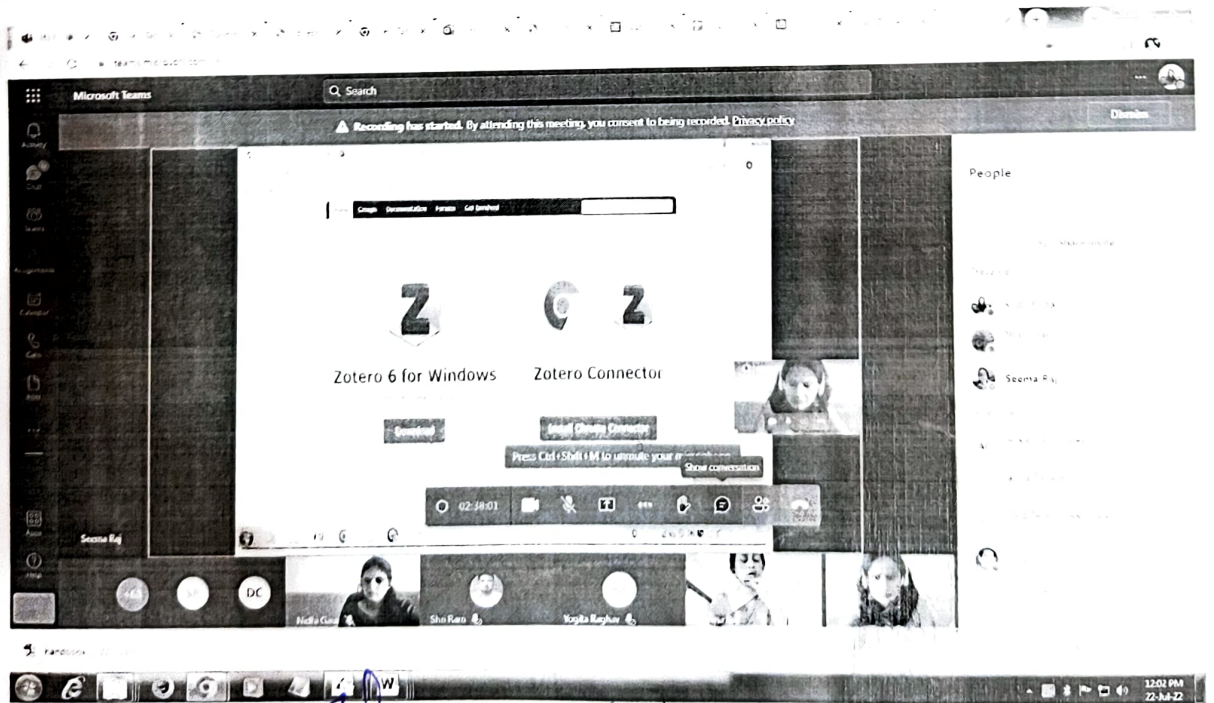
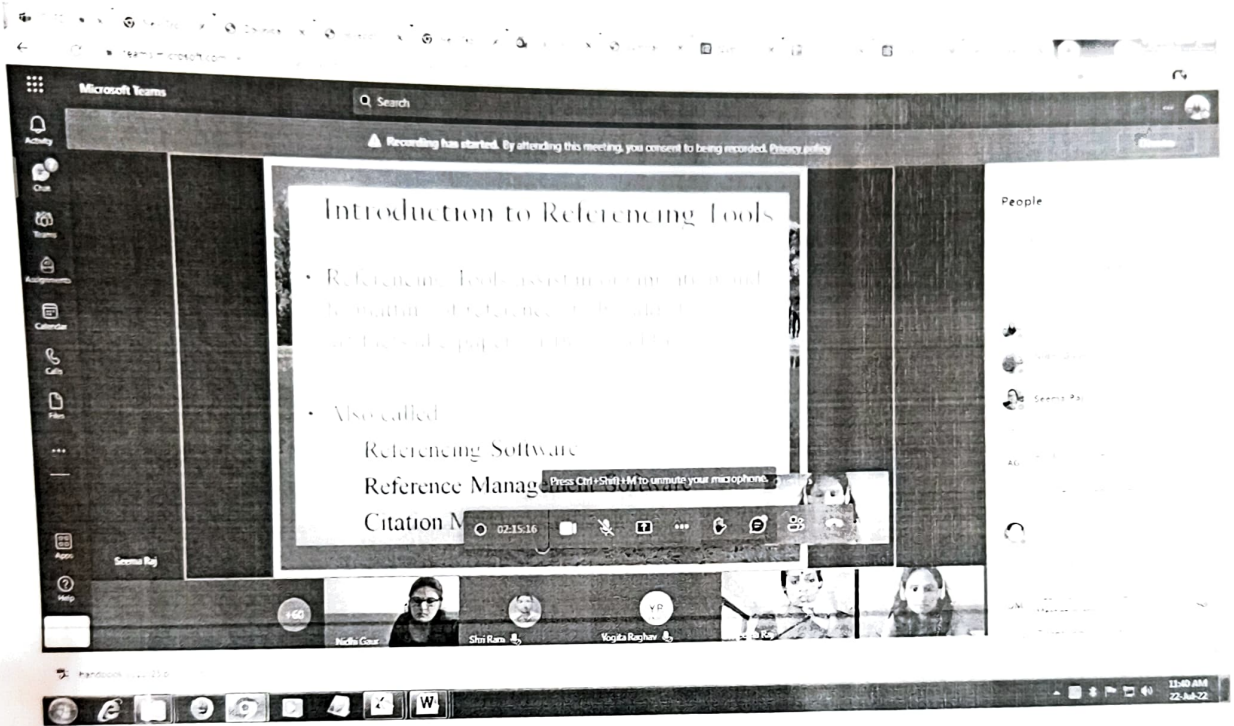
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Session II of FDP day 5

Dr. Nidhi Gaur welcomed Dr. Seema Raj, Assistant Professor, KRMU in Day 5 Session 2. The session comprises of detailed coverage of "Hands on Zotero" session by the speaker. She imparted hands on experience in using this tool while adding references in any research article. The talk highlighted the importance of such software thereby leading to effective usage of time while writing research article. The session was very interactive and was gracefully concluded by Dr. Ruby Jindal.



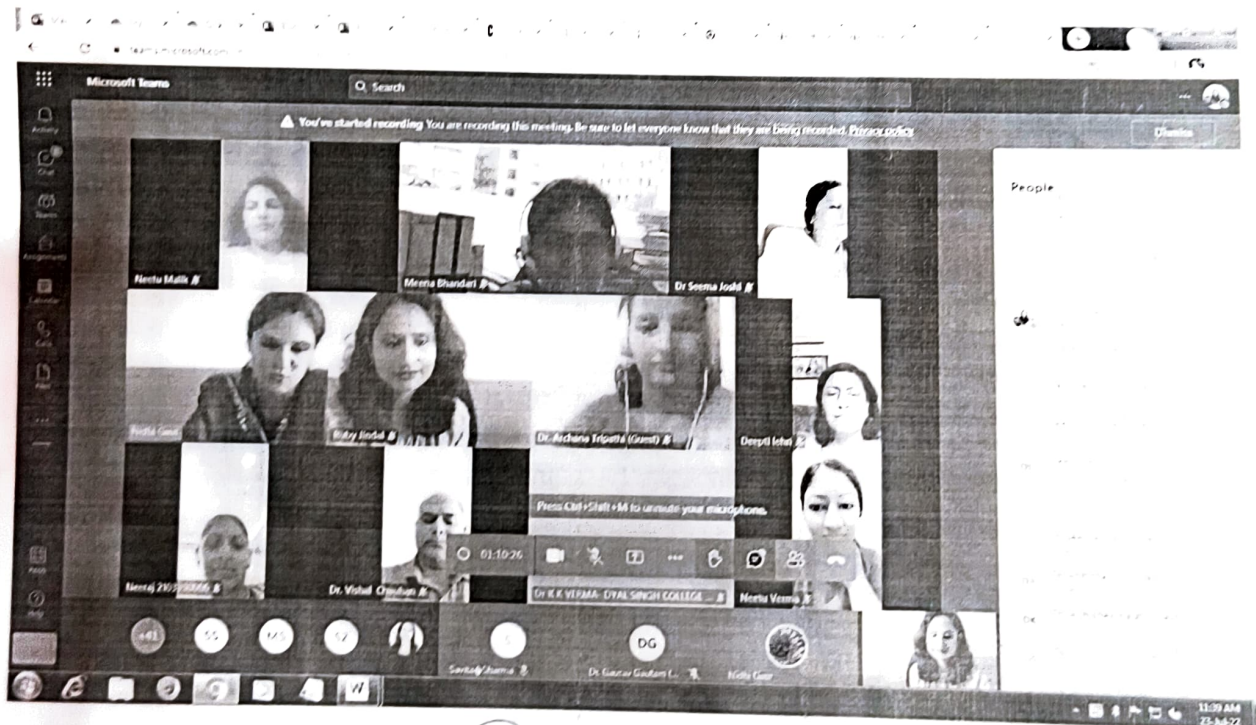
Jindal
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K.R. Mangalam University
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Seema Raj

Nidhi Gaur

Day 6 -Valedictory session

The six days Faculty Development Programme on " Research Techniques in Science and Technology "came to a close on 25th August 2022, with a Valedictory function. Dr Nidhi Gaur started the session with inaugural speech which was further proceeded by the vote of thanks to speakers and summary of their work by Dr Archans Tripathi. The session was smoothly taken over by Dr. Ruby Jindal .She gave motivational remarks to all the participants for their active participation and also highlighted the importance of research techniques in doing research work. The session came to an end by the vote of thanks delivered by Dr Meena Bhandari, Dean, SBAS, KRMU. She thanked the principal of Gargi college and KRMU management for providing their support to conduct this event and also extended her thanks to the organizing team for conducting the FDP. She also emphasized on the relevance of quality research during the valedictory programme and encouraged the participants to keep learning research methodology techniques and doing quality research. This FDP was the feather in the cap and it was a milestone and there will be many on the way to come.



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E D U C A T I O N F O R L I F E

(Recognized by UGC and a member of AIU)

Ref. No.: KRMU/SBAS/ 2022-23/ 08

Date: 22.09.2022

NOTICE

Workshop on “Artificial Intelligence Applied to Materials Discovery and Design”

In collaboration with

Gargi College, University of Delhi

School of Basic and Applied Sciences, K. R. Mangalam University in collaboration with Gargi College, University of Delhi wants to organize a workshop on “Artificial Intelligence Applied to Materials Discovery and Design” on **29th September 2022**. The main aim of organizing the event is to inform about the applications of artificial intelligence and machine learning for materials design, including physical metallurgy, catalysis and mechanics of materials.

Event Venue: B014/ Online


Date: 29th September, 2022

Time – 12:00 PM to 2:00 PM

Resource Person: Dr. Vandna Luthra, Associate Professor, Gargi College, University of Delhi



Dr. Neeraj Kumari & Dr. Nidhi Gaur
Event Coordinator


Dr. Meena Bhandari
(Dean, SBAS)


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K.R. MANGALAM UNIVERSITY
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**SCHOOL OF BASIC AND APPLIED SCIENCES
IN COLLABORATION WITH
GARGI COLLEGE
UNIVERSITY OF DELHI
ORGANIZES**

RESOURCE PERSON



**DR. VANDANA LUTHRA
GARGI COLLEGE
UNIVERSITY OF DELHI**

**A WORKSHOP
ON
ARTIFICIAL INTELLIGENCE AND
MACHINE LEARNING
APPLIED TO MATERIALS DISCOVERY
AND DESIGN**

**FACULTY COORDINATOR:
NEERAJ KUMARI AND DR. NIDHI GAUR**

**DATE: 29 SEPTEMBER 2022
TIME: 3:00 PM ONWARDS
VENUE: B014, B BLOCK/ MS TEAM**

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Sohna Road, Gurugram



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Report on
Artificial Intelligence Applied to Materials Discovery and Design
In collaboration with
Gargi College, University of Delhi (Under MoU)

Date: 29th September 2022

Venue: MS team

Event Type: Workshop

Mode of activity: Online Mode

Target Group: SBAS students

Resource person: Dr. Vandna Luthra, Associate Professor, Gargi College, University of Delhi

Coordinators: Dr Neeraj Kumari and Dr Nidhi Gaur

Organized by: School of Basic and Applied Sciences

Number of participants: 25

On 29th September 2022, School of Basic and Applied Sciences organized a workshop on “Artificial Intelligence Applied to Materials Discovery and Design” in collaboration with Gargi College, University of Delhi, Delhi under MOU. The main objective to organize the workshop was to explore about the use of machine learning tools for identification of features of any materials and their design with more efficacy. The workshop was started by Dr Neeraj Kumari, Faculty Coordinator by warm welcoming the participants. Dr Neeraj initiated the program after giving a brief introduction about the artificial intelligence and machine learning.

Dr Vandna started her talk from basics of artificial intelligence and machine learning. She told that Artificial Intelligence (AI) has grown into a major tool in scientific and technological era. The main application of AI is to optimize design, production and application of materials due to which materials scientists are attracting more and more towards this area. The developments and advancements in machine learning have opened the door for various new

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methods to study phase transitions due to their ability to extremely efficiently identify complex patterns in systems of many particles. The application of machine learning techniques vary from the use of developing new ML-based order parameters for complex crystal structures, to locating phase transitions, to speeding up simulations. She emphasized on importance of AI which is well fitted to manufacturing as it can perform manufacturing, quality control, shorten design time, and reduce materials waste, improve production reuse, perform predictive maintenance, and more.

She highlighted about several categories of Machine Learning according to the target values type and the nature of the issue that has to be solved. These algorithms may be generally characterized as Regression algorithms, Clustering algorithms, and Classification algorithms. Clustering is an example of an unsupervised learning algorithm, in contrast to regression and classification, which are both examples of supervised learning algorithms. Machine learning play an important role in the field of machine intelligence concerned with the design and development of algorithms and models that allow computers to learn without being explicitly programmed.

In the last, she gave an assignment to the students to identify the characteristics of flower using AI/ ML. The students participated very enthusiastically and gave the answer very well. The whole session was very good and interesting for the students and faculty members. The session was ended by Dr Neeraj Kumari with vote of thanks to the guest speaker as well as participants.

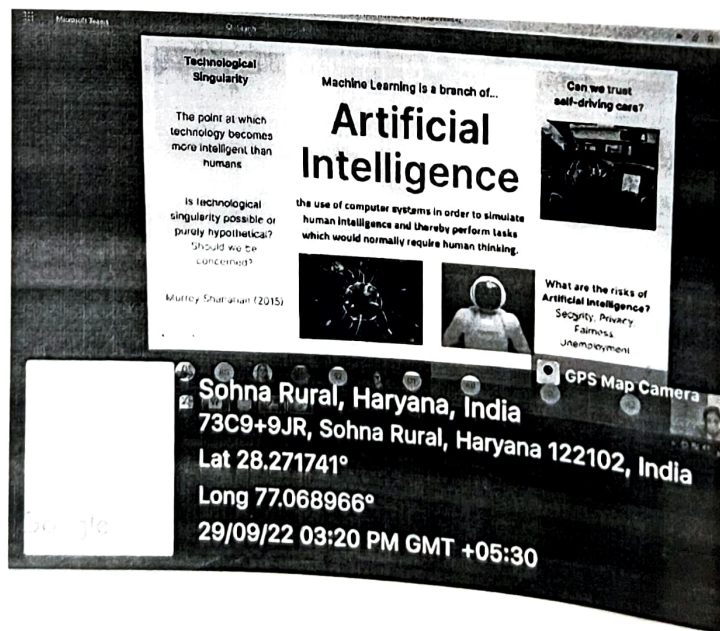


Photo 1: A slide showing the importance of artificial intelligence


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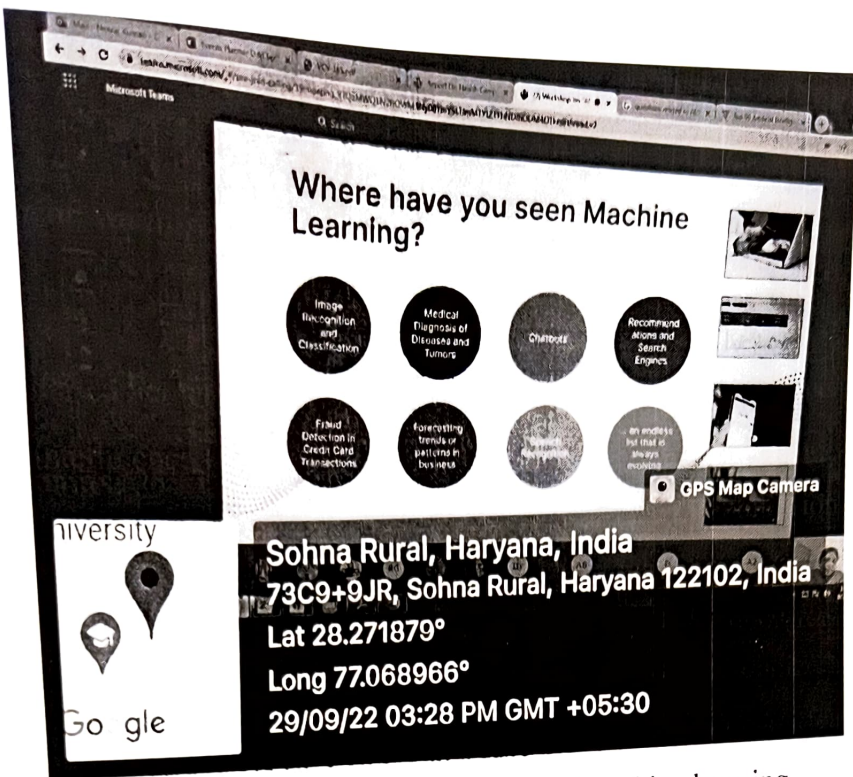


Photo 2: A slide showing importance of machine learning



Photo 3: Assignment for the participants

Neeraj

Meena

Meera
gaur

[Signature]

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K.R. MANGALAM UNIVERSITY

THE COMPLETE WORLD OF EDUCATION

Gurugram, Delhi-NCR



GARGI COLLEGE

UNIVERSITY OF DELHI

ACCREDITED WITH GRADE 'A' BY NAAC

**SCHOOL OF BASIC AND APPLIED SCIENCES
K.R. MANGALAM UNIVERSITY**

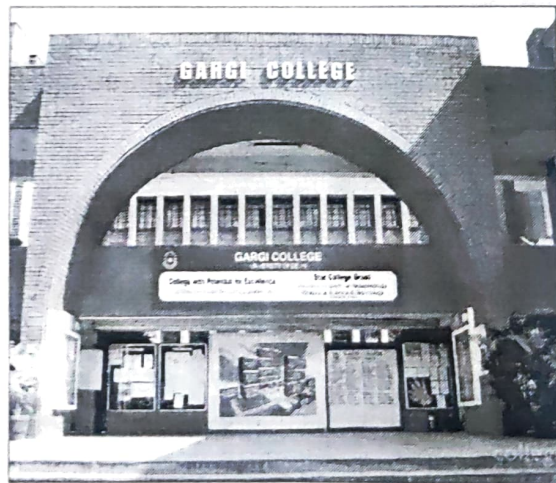
AND

**GARGI COLLEGE, UNIVERSITY OF DELHI
Organizes**

Faculty Development Program

***“Research Techniques in Science
and Technology”***

18th - 23rd July, 2022



University Gurugram Campus: ☎ 011-48884888 / 8800697010-15 📞 8800697012

🌐 www.krmangalam.edu.in ✉ welcome@krmangalam.edu.in