### **One-week workshop on Research Methodology, Research Ethics and IPR**

The Department of Mathematics at Janki Devi Memorial College, University of Delhi, successfully organised a **one-week workshop on Research Methodology, Research Ethics and IPR** aimed at equipping students and faculty members with essential research skills and knowledge, from **April 1st to 5th, 2025**.

The workshop commenced with a warm welcome by the Teacher-in-Charge, Prof. Ritu Arora, along with the Association Incharges Mr. Aditya Robin Singh and Dr. Rakesh.

Dr. Ranjana Jain from the University of Delhi conducted the inaugural session and delivered a highly engaging and informative talk. The sessions on the first two days were held in offline mode, allowing for interactive in-person discussions. From the third day onwards, the workshop transitioned to the online mode.

The second day featured an insightful session by Ms. Anveksha Moar, followed by Dr. Rashmi Rani on the third day, who brought valuable perspectives to the discussion. Dr. Rashmi Verma continued the academic discourse on the fourth day with a thoughtful presentation. The workshop concluded with an enriching session by Ms. Chanpreet Kaur on the fifth and final day.

The event concluded on a successful note with a formal vote of thanks, expressing deep appreciation to all the speakers for their valuable contributions and our Principal Prof. Swati Pal for motivating and supporting us. Special thanks were extended to the participants, the Teacher-in-Charge Prof. Ritu Arora, and the Association Incharges Mr. Aditya Robin Singh and Dr. Rakesh, whose efforts and enthusiasm were instrumental in making the workshop a meaningful and enriching experience for all.

Learning Objectives:

• Comprehending Research Methodology in Mathematics:

To develop an understanding of various research methodologies applicable to mathematical research, including both qualitative and quantitative approaches.

2. To familiarize participants with the process of selecting the appropriate research method based on the nature of the research question and objectives.

Research Problem Formulation and Hypothesis Development:

• To learn how to effectively identify and formulate clear, focused research questions within the realm of mathematics.

- To understand how to develop hypotheses and establish the scope of research within mathematical contexts.
- 3. Data Collection and Analysis Techniques:
  - To explore different data collection methods used in mathematical research, such as surveys, experiments, and computational simulations.
  - To learn analytical techniques, including statistical analysis, mathematical modeling, and the use of software tools such as MATLAB, R, and Python for data analysis.
- 4. Academic Writing and Dissemination of Research:
  - To improve skills in academic writing, including structuring research papers, writing clear abstracts, and presenting results coherently.
  - To provide participants with the tools for effective publication in academic journals and conferences, including guidance on peer review and the publication process.
- 5. Understanding Ethical Considerations in Research:
  - To familiarize participants with ethical issues in mathematical research, including data integrity, plagiarism, proper citation practices, and the ethical treatment of research subjects.
- 6. Practical Application of Research Tools and Techniques:
  - To provide hands-on experience with software and tools commonly used in mathematical research, such as LaTeX for document preparation and MATLAB for computational simulations.
  - To encourage participants to apply the research methods and techniques to their own work, fostering practical problem-solving and critical thinking skills.

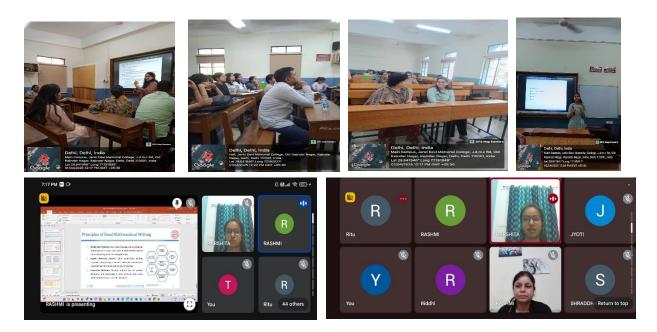
#### Learning Outcomes:

- 1. Mastery of Research Methodology:
  - Participants will demonstrate an in-depth understanding of the various research methodologies used in mathematical research, and will be able to apply these methodologies effectively to their research projects.
- 2. Advanced Problem-Solving and Analytical Skills:
  - Participants will develop advanced skills in analyzing mathematical problems, formulating hypotheses, and using appropriate research tools and techniques to solve them.
- 3. Enhanced Academic Writing Proficiency:
  - Participants will gain confidence in writing well-structured research papers, effectively presenting mathematical results, and following best practices for academic writing.
- 4. Strengthened Ethical Awareness in Research:
  - Participants will be equipped to identify and navigate ethical dilemmas in their research, ensuring they uphold the highest standards of academic integrity.
- 5. Proficiency in Research Tools and Software:
  - Participants will be capable of using specialized mathematical research tools, such as MATLAB and LaTeX, to conduct and present their research, enhancing both their practical and computational skills.
- 6. Improved Collaboration and Networking Skills:
  - Participants will have the opportunity to collaborate with fellow researchers, fostering a network of peers and mentors who can support them in future research endeavors.

### **Posters of the Event:**



### Photos of the event:



#### Attendance of the Event:

The first two sessions were conducted offline, followed by three sessions on Google Meet.

## Day 1: 1<sup>st</sup> April 2025

nestamp	Name	Year	Section	Have you alre
4/1/2025 12:18:21	Yashvi	3	в	No
4/1/2025 12:18:45	Akanksha Rawat	3	в	No
4/1/2025 12:21:47	Harshita Bhardwaj	3	в	Yes
4/1/2025 12:29:59	Sanya Sharma	3	в	Yes
4/1/2025 12:30:35	Khushi kaintura	3	^	Yes
4/1/2025 12:30:49	Sanskriti	3	A	Yes
4/1/2025 12:30:54	Rashmi Singh	3	в	Yes
4/1/2025 12:31:14	Ridhima Chaudhary	3	A	No
4/1/2025 12:31:20	Kaphee	3	в	No
4/1/2025 12:31:31	Anshika yadav	3	в	No
4/1/2025 12:31:36	Aruna	3	A	No
4/1/2025 12:31:37	Pooja kumari	3	A	No
4/1/2025 12:31:58	Tanzil Jain	3	в	No
4/1/2025 12:32:12	Jyoti	3	в	No
4/1/2025 12:32:13	Anjali Kumari	3	A	No
4/1/2025 12:32:30	Khushi tiwari	3	в	No
4/1/2025 12:32:32	Sneha	3	B	No
4/1/2025 12:32:37	Kajal Saini	3	2	Yes
4/1/2025 12:32:53	Uarvashi	3	B	Yes
4/1/2025 12:33:09	Shreya Priy	3	A	No
4/1/2025 12:33:36	Shraddha Singh	3	B	Yes
4/1/2025 12:33:42	Shalu	3	в	Yes
4/1/2025 12:33:56	Shailyi	2	A	No
4/1/2025 12:34:36	Anshika verma	3	A	No
4/1/2025 12:34:36	Lavna Paribar	3	8	Yes
4/1/2025 12:35:25	Shivanshi	3	8	No
4/1/2025 12:36:02		3	A	NO
	Pragati	1.77	A A	
4/1/2025 12:39:11	Prakriti	3		No
4/1/2025 12:39:20	Astha Singh	3	A	Yes
4/1/2025 12:43:05	Aditi	3	В	No
4/1/2025 12:46:00	Deepti	3	A	Yes
4/1/2025 12:50:33	Kanika Pandey	2	A	No
4/1/2025 12:50:56	Anjali Gupta	3	в	No
4/1/2025 12:51:06	Aparna Kumari	3	в	No
4/1/2025 13:03:12	Sonal bansal	3	в	No
4/1/2025 13:09:11	Kalpana	3	в	No
4/1/2025 13:09:38	Prashanta	3	A	No
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4/1/2025 14:27:58	Meha Dubey	1	A	No
4/1/2025 15:18:28	Disha Pawar	3	A	Yes
4/1/2025 15:18:53	Shuva Chakraborty	3	A	Yes
4/1/2025 15:19:22	Ayushi	3	A	Yes
4/1/2025 15:55:07	Sakshi	3	A	Yes
4/1/2025 17:50:15	Khushboo	3	A	Yes
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4/1/2025 18:59:52	Riddhi bansal	3	~	No
4/2/2025 11:04:34	Jyoti kumari	3	A	Yes
4/2/2025 11:54:33	Shruti Rawat	3	~	Yes
4/2/2025 12:40:05	Anjali	3	A	Yes
4/2/2025 13:42:36	Artee Singh	3	в	Yes

Timestamp		Email Address	Name	Year		Section
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4/2/2025	12:28:31	yashvi.22math1318@jdn	Yashvi		3	в
4/2/2025	12:28:45	deepti.22math1392@jdn	Deepti		3	A
4/2/2025	12:29:41	jyoti.22math1606@jdm.c	Jyoti kumari		3	A
4/2/2025	12:30:05	kalpana.singh8176@gmi	Kalpana		3	в
4/2/2025	12:30:15	anjali.22math1521@jdm	Anjali Kumari		3	A
4/2/2025	12:30:22	prakriti.22math31@jdm.e	Prakriti		3	A
4/2/2025	12:31:45	swatikumari7190@gmail	Swati Kumari		3	A
4/2/2025	12:32:18	anshika17n04@gmail.co	Anshika verma		3	A
4/2/2025	12:32:20	shalupoonia6969@gmail	Shalu		3	В
4/2/2025	12:32:23	uarvashinarwal@gmail.c	Uarvashi		3	в
4/2/2025	12:32:28	shreya.22math203@jdm	Shreya Priy		3	A
4/2/2025	12:32:38	shailvi.22math442@jdm.	Shailvi		3	A
4/2/2025	12:33:08	tanzii.22math1660@jdm	Tanzil Jain		3	В
4/2/2025	12:33:13	shraddha.22math1062@			3	в
4/2/2025	12:33:25	snehakumarii0405@gma			3	В
4/2/2025	12:33:32	nawaarshad1@gmail.cor			3	A
4/2/2025	12:33:33	sanya.22math1405@jdm			3	в
4/2/2025	12:33:43	nidhi.22math591@jdm.d			3	A
4/2/2025	12:33:50	ayushi.22math1783@jdn			3	A
4/2/2025	12:34:10	shivanshi.22math727@jc			3	в
4/2/2025	12:34:15	dishapawar200416@gm	Disha Pawar		3	A
4/2/2025	12:34:16	rashmi.22math1339@jdr			3	в
4/2/2025	12:34:17	arunarana307@gmail.co	Aruna		3	A
4/2/2025	12:34:19	pariharlayna@gmail.com			3	в
4/2/2025	12:34:21	anjali.22math1522@jdm			3	A
4/2/2025	12:34:24	pooja.22math1474@jdm	Pooja kumari		3	A
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4/2/2025	12:35:14	yadavprashanta74@gma			3	A
4/2/2025	12:35:57	msanskriti537@gmail.cc			3	A
4/2/2025	12:36:05	bishtaditi1101@gmail.cc			3	в
4/2/2025	12:36:11	sonal.22math1298@jdm			3	в
4/2/2025	12:37:07	kajal.22math775@jdm.d			3	A
4/2/2025	12:37:11	meha.24mat658@jdm.du			1	A
4/2/2025	12:37:34	iharshiaashi@gmail.com			3	в
4/2/2025		kt0312692@gmail.com			3	в
4/2/2025		khushi.22math1300@jdr			3	A
4/2/2025	12:39:26	yanshika1718@gmail.co			3	в
4/2/2025	12:40:21	ridhima.22math446@jdn			3	A
4/2/2025		aparna.22math1084@jdr			3	в
4/2/2025	13:02:08	riddhi.22math1633@jdm			3	A
4/2/2025		jaspal58127@gmail.com			3	в
4/2/2025		shuva.22math1492@jdm			3	A
4/2/2025		kaphee.22math1657@jd			3	в
4/2/2025		shruti.22math1520@jdm			3	A
4/2/2025		gaurshruti1704@gmail.c			3	в
		a second and a second second			-	57 C

# Day 3: 3<sup>rd</sup> April, 2025

Timestamp	Email Address	Name	Year	Sec
4/3/2025 18:36:08	akanksharawat0906@gn	Akanksha Rawat	3	В
4/3/2025 18:41:04	iharshiaashi@gmail.com	Harshita Bhardwaj	3	В
4/3/2025 18:48:05	aparna.22math1084@jdr	Aparna Kumari	3	в
4/3/2025 18:58:09	uarvashinarwal@gmail.c	Uarvashi	3	В
4/3/2025 19:15:05	yashvi.22math1318@jdn	Yashvi	3	В
4/3/2025 19:15:30	kajal.22math775@jdm.d	Kajal Saini	3	А
4/3/2025 19:15:35	arunarana307@gmail.co	Aruna	3	A
4/3/2025 19:15:42	tanzil.22math1660@jdm	Tanzil Jain	3	В
4/3/2025 19:15:46	kaphee.22math1657@jdi	Kaphee	3	В
4/3/2025 19:15:59	nidhi.22math591@jdm.d	Nidhi patel	3	A
4/3/2025 19:16:01	shailvi.22math442@jdm.	Shailvi	3	А
4/3/2025 19:16:17	shraddha.22math1062@	Shraddha Singh	3	В
4/3/2025 19:16:37	shivanshi.22math727@jc	Shivanshi	3	В
4/3/2025 19:16:58	ridhima.22math446@jdm	Ridhima Chaudhary	3	A
4/3/2025 19:17:38	deepti.22math1392@jdm	deepti	3	A
4/3/2025 19:18:31	prakritiprakriti74@gmail.	Prakriti	3	А
4/3/2025 19:19:10	bishtaditi1101@gmail.co	Aditi	3	В
4/3/2025 19:19:18	gaurshruti1704@gmail.c	Shruti Gaur	3	В
4/3/2025 19:19:28	sonal.22math1298@jdm	Sonal bansal	3	в
4/3/2025 19:19:28	shrutirawat7305@gmail.	Shruti Rawat	3	A
4/3/2025 19:19:46	rashmi.22math1339@jdr	Rashmi Singh	3	В
4/3/2025 19:19:53	khushboo.22math5@jdm	Khushboo	3	A
4/3/2025 19:20:04	kalpana.22math1502@jc	Kalpana	3	В
4/3/2025 19:20:21	pariharlayna@gmail.com	Layna Parihar	3	В
4/3/2025 19:20:22	shreya.22math203@jdm	Shreya Priy	3	A
4/3/2025 19:20:23	shuva.22math1492@jdm	Shuva Chakraborty	3	A
4/3/2025 19:20:25	sakshi.22math1669@jdn	Sakshi	3	А
4/3/2025 19:20:31	pooja.22math1474@jdm	Pooja kumari	3	A
4/3/2025 19:21:06	anjali.22math1635@jdm	Anjali Gupta	3	В
4/3/2025 19:22:01	dishapawar200416@gm	Disha pawar	3	A
4/3/2025 19:22:04	jaspal58127@gmail.com	Jyoti	3	в
4/3/2025 19:22:28	ridhima.22ba1712@jdm.	Ridhima Yadav	3	A
4/3/2025 19:22:44	khushi.22math1470@jdn	Khushi tiwari	3	В
4/3/2025 19:23:11	astha.22math1425@jdm	Astha Singh	3	A
4/3/2025 19:29:26	nawaarshad1@gmail.cor	Nawa Arshad	3	A
4/3/2025 19:31:05	khushi.22math1300@jdr	Khushi kaintura	3	A
4/3/2025 19:35:48	anjali.22math1522@jdm	Anjali	3	A
4/3/2025 19:36:18	anjali.22math1521@jdm	Anjali Kumari	3	A
4/3/2025 19:49:20	jyoti.22math1606@jdm.c		3	A
4/3/2025 19:58:12	snehakumarii0405@gma		3	В
4/3/2025 20:04:04	riddhi.22math1633@jdm	Riddhi bansal	3	A
4/3/2025 21:32:34	ayushi.22math1783@jdn	Ayushi	3	A
4/3/2025 21:43:37	artee.22math772@jdm.d		3	
4/4/2025 18:14:14	sanya.22math1405@jdm		3	В
4/4/2025 20:55:30	yanshika1718@gmail.co		3	В

# Day 4: 4<sup>th</sup> April, 2025

Timestamp	Email Address	Name	Year	
4/4/2025 17:00:21	uarvashinarwal@gmail.c	Uarvashi		3
4/4/2025 17:36:52	akanksharawat0906@gn	Akanksha Rawat		3
4/4/2025 17:59:30	gaurshruti1704@gmail.c	Shruti Gaur		3
4/4/2025 18:00:04	kaphee.22math1657@jd	Kaphee		3
4/4/2025 18:00:25	shivanshi.22math727@jc	Shivanshi		3
4/4/2025 18:00:25	bishtaditi1101@gmail.cc	Aditi		3
4/4/2025 18:00:29	deepti.22math1392@jdm	Deepti		3
4/4/2025 18:00:32	rahima.22math1654@jdr	Rahima		3
4/4/2025 18:00:32	pariharlayna@gmail.com	Layna Parihar		3
4/4/2025 18:00:48	prakritiprakriti74@gmail.	Prakriti		3
4/4/2025 18:00:51	anjali.22math1635@jdm	Anjali Gupta		3
4/4/2025 18:00:52	khushi.22math1470@jdr	Khushi tiwari		3
4/4/2025 18:00:58	pooja.22math1474@jdm	Pooja kumari		3
4/4/2025 18:01:02	kalpana.22math1502@jc	Kalpana		3
4/4/2025 18:01:05	tanzil.22math1660@jdm	Tanzil Jain		3
4/4/2025 18:01:09	shraddha.22math1062@	Shraddha Singh		3
4/4/2025 18:01:20	nidhi.22math591@jdm.d	Nidhi patel		3
4/4/2025 18:01:23	ridhima.22math446@jdn	Ridhima Chaudhary		3
4/4/2025 18:01:30	nawaarshad1@gmail.cor	Nawa Arshad		3
4/4/2025 18:01:37	anshika17n04@gmail.co	Anshika verma		3
4/4/2025 18:01:47	sonal.22math1298@jdm	Sonal bansal		3
4/4/2025 18:01:52	shuva.22math1492@jdm	Shuva Chakraborty		3
4/4/2025 18:02:17	aparna.22math1084@jdr	Aparna Kumari		3
4/4/2025 18:02:39	jaspal58127@gmail.com	Jyoti		3
4/4/2025 18:02:55	anjali.22math1521@jdm	Anjali Kumari		3
4/4/2025 18:03:17	iharshiaashi@gmail.com	Harshita Bhardwaj		3
4/4/2025 18:06:23	arunarana307@gmail.co	Aruna		3
4/4/2025 18:14:49	sanya.22math1405@jdm	Sanya Sharma		3
4/4/2025 18:15:11	kajal.22math775@jdm.d	Kajal Saini		3
4/4/2025 18:17:27	anjali.22math1522@jdm	Anjali		3
4/4/2025 18:17:55	jyoti.22math1606@jdm.c	Jyoti		3
4/4/2025 18:29:15	yashvi.22math1318@jdn	Yashvi		3
4/4/2025 18:33:16	snehakumarii0405@gma	Sneha kumari		3
4/4/2025 18:40:23	dishapawar200416@gm	Disha Pawar		3
4/4/2025 18:41:59	khushboo.22math5@jdm	Khushboo		3
4/4/2025 18:58:58	rashmii.singhh2909@gm	Rashmi Singh		3
4/4/2025 19:08:30	artee.22math772@jdm.d	Artee Singh		3
4/4/2025 19:11:54	shrutirawat7305@gmail.	Shruti Rawat		3
4/4/2025 20:38:43	ayushi.22math1783@jdn	Ayushi		3
4/4/2025 20:54:52	yanshika1718@gmail.co	Anshika yadav		3
4/4/2025 21:52:59	sakshi.22math1669@jdn	Sakshi		3
4/5/2025 16:37:37	riddhi.22math1633@jdm	Riddhi		3
4/5/2025 16:52:26	astha.22math1425@jdm	Astha Singh		3

# Day 5: 5<sup>th</sup> April, 2025

	Email Address	Name	Year	
4/5/2025 16:56:02	astha.22math1425@jdm	Astha Singh		3
4/5/2025 16:57:42	deepti.22math1392@jdm	Deepti		3
4/5/2025 17:04:35	uarvashinarwal@gmail.c	Uarvashi		3
4/5/2025 17:29:26	iharshiaashi@gmail.com	Harshita Bhardwaj		3
4/5/2025 17:53:32	akanksharawat0906@gn	Akanksha Rawat		3
4/5/2025 18:02:24	gaurshruti1704@gmail.c	Shruti Gaur		3
4/5/2025 18:02:39	nawaarshad1@gmail.cor	Nawa Arshad		3
4/5/2025 18:02:42	arunarana307@gmail.co	Aruna		3
4/5/2025 18:02:47	pariharlayna@gmail.com	Layna Parihar		3
4/5/2025 18:02:51	ridhima.22math446@jdn	Ridhima Chaudhary		3
4/5/2025 18:02:51	ridhima.22ba1712@jdm.	Ridhima Yadav		3
4/5/2025 18:02:58	kajal.22math775@jdm.d	Kajal Saini		3
4/5/2025 18:03:00	prakritiprakriti74@gmail.	Prakriti		3
4/5/2025 18:03:02	sanya.22math1405@jdm	Sanya Sharma		3
4/5/2025 18:03:06	jaspal58127@gmail.com	Jyoti		3
4/5/2025 18:03:07	bishtaditi1101@gmail.cc	Aditi		3
4/5/2025 18:03:07	khushi.22math1470@jdr	Khushi tiwari		3
4/5/2025 18:03:10	shraddha.22math1062@	Shraddha Singh		3
4/5/2025 18:03:11	pooja.22math1474@jdm	Pooja kumari		3
4/5/2025 18:03:15	snehakumarii0405@gma	Sneha kumari		3
4/5/2025 18:03:17	rahima.22math1654@jdr	Rahima		3
4/5/2025 18:03:20	anshika17n04@gmail.co	Anshika verma		3
4/5/2025 18:03:26	anjali.22math1522@jdm	Anjali		3
4/5/2025 18:03:32	himanshi.22math757@jc	Himanshi		3
4/5/2025 18:03:35	nidhi.22math591@jdm.d	Nidhi patel		3
4/5/2025 18:03:40	tanzil.22math1660@jdm	Tanzil Jain		3
4/5/2025 18:03:53	shivanshi.22math727@jc	Shivanshi		з
4/5/2025 18:04:40	khushi.22math1300@jdr	Khushi kaintura		3
4/5/2025 18:04:45	shailvi.22math442@jdm.	Shailvi		3
4/5/2025 18:04:57	sonal.22math1298@jdm	Sonal bansal		3
4/5/2025 18:05:17	sakshi.22math1669@jdn	Sakshi		3
4/5/2025 18:05:34	shreya.22math203@jdm	Shreya Priy		3
4/5/2025 18:08:43	kaphee.22math1657@jd	Kaphee		3
4/5/2025 18:10:19	bhavna.22math754@jdrr	Bhavna		3
4/5/2025 18:11:13	anjali.22math1521@jdm	Anjali Kumari		3
4/5/2025 18:13:16	kalpana.22math1502@jc	Kalpana		3
4/5/2025 18:13:27	shruti.22math1520@jdm	Shruti Rawat		3
4/5/2025 18:14:07	shuva.22math1492@jdrr	Shuva Chakraborty		3
4/5/2025 18:15:27	rashmi.22math1339@jdr	Rashmi Singh		3
4/5/2025 18:21:59	yashvi.22math1318@jdn	Yashvi		3
4/5/2025 18:26:53	artee.22math772@jdm.d	Artee Singh		3
4/5/2025 18:49:33	anjali.22math1635@jdm	Anjali Gupta		3
4/5/2025 18:55:29	aparna.22math1084@jdr	Aparna Kumari		3
4/5/2025 19:30:19	riddhi.22math1633@jdm	Riddhi bansal		3
4/5/2025 19:57:18	dishapawar200416@gm	Disha Pawar		3