

# Delhi Technological University



## Mathematics and Computing Society

Report for the Session 2022-23

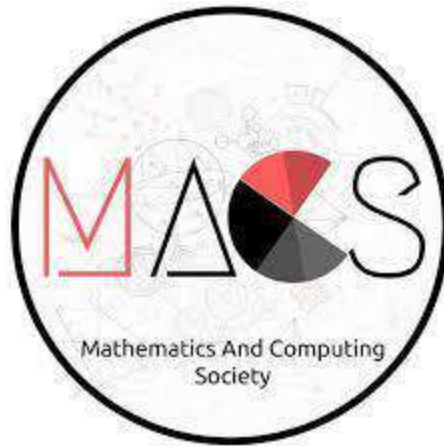
**President:**

Aditya Maurya  
(2K20/MC/013)

**Faculty Advisor:**

Dr. Dinesh Udar  
Department of Applied Mathematics





## About MCE

The Department of Applied Mathematics is the pride of DTU. The aim of the department is to impart the sound knowledge of Mathematics, Statistics and Computing to the students through teaching and research. The department is achieving its goals with the help of highly qualified faculty. The research output of the department is very impressive and speaks clearly for the quality of work. Faculty members are also actively involved in research, projects and various academic activities.

This program is an amalgamation of Mathematics with Computer Science and Financial Engineering. The curriculum has been designed to meet the needs of sophisticated mathematics for modern scientific investigations and technological developments. The students are being enriched with in-depth theoretical background and practical training in Numerical Computing, Operations Research, Computer Science and Mathematical finance by a team of committed faculty members from the disciplines of Pure Mathematics, Applied Mathematics, Computer Engineering, Information technology and Economics.

## MACS

MACS acronym for Mathematics and Computing Society, MACS DTU, the Mathematics and Computing Society of Delhi Technological University is the tavern for the snollygosters and esurient for the profound knowledge of each domain belonging to Mathematics, Computing, Finance etc. It is the official department society with over 200+ member & faculty advisors that helps in

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providing students with a platform to discover Core knowledge of Applied Mathematics and Computer science subjects. MACS also provides every ardent enthusiast with a platform and incessant orientation to reach to the zenith with its asymptotes. It focuses upon learning through workshops, SIGs, seminars, guest lectures and various symposiums. MACS organizes various events every year with the consortium of Invictus i.e, the tech fest organized by the DTU.

In the past years, MACS has emerged as the most prolific organization with over 250+ active members contributing in various forms to the institute and department. It has emerged as a protuberant plinth for the aspirants under the direction of austere and benevolent boffins. The preponderance upon social media handles viz. Instagram and Facebook have gained gusto by vigorous engagement amongst the apprentices and the MACS. These handles have a combined reach of up to 2000 students belonging to various disciplines.

### **Our Council**

The MACS Council is the coterie of numerous deft engineers who coordinate and work adherently to organize and manage events, meetings and various conundrums in the course of maneuvers hosted by the society. The Council incessantly ensures to heft the accolade and acclamation that the MACS DTU commanded and what was bestowed upon this Council by the forerunners. The Council is constituted by the Secretariat headed by the Faculty Advisor, a professor of Applied Mathematics along with the Student President of MACS. It comprises several posts and duties conferred to the wilful and deserving postulants stipulated through a series of interviews and analyses of past experience and contribution to the society.



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**Faculty Advisor:** Dr. Dinesh Udar, Assistant Professor, Department of Applied Mathematics

**Faculty Co-Advisor:** Ms. Trasha Gupta, Assistant Professor, Department of Applied Mathematics

### Office Bearers

Name	Designation	Roll Number
Aditya Maurya	President	2K20/MC/013
Ishan Bhateja	Vice President	2K20/MC/061
Nikhil Gupta	Treasurer	2K20/MC/086
Md. Sahil Ansari	Head of Operations	2K20/MC/078
Keshav Nath	Head of Research	2K20/ME/123
Nissan Kumar	General Secretary	2K21/MC/119
Aman Gupta	Joint Secretary	2K21/SE/021
Charvi Solanki	Creative Head	2K21/MC/043
Samyak Jain	PR & Marketing Head	2K21/MC/146
Vansh Tayal	PR & Marketing Head	2K21/EE/308
Rahul Sharma	PR & Marketing Head	2K21/MC/132
Shresth Aggarwal	Corporate Head	2K21/CH/061
Aditya Nirbhay	Corporate Head	2K21/MC/014
Harshit Khurana	Video Editing Head	2K21/MC/069
Sakshi Jaglan	Design Head	2K22/MSCMAT/035
Sanyam Goyal	Design Head	2K21/MC/149
Kurush Rastogi	Student Coordinator	2K21/EC/125
Diksha Bhati	Student Coordinator	2K22/MSCMAT/09
Amaan Tarique	Student Coordinator	2K21/MC/018
Madhav Prasad	Content Head	2K21/MC/97
Prerna Saini	Content Head	2K21/CO/345
Shivam Kumar	SIG Head	2K21/EP/089
Aayush Goyal	Tech Head	2K21/EE/006
Aditya Mishra	Tech Head	2K21/MC/012
Shivam Mittal	Machine Learning Head	2K21/MC/156



दिल्ली प्रौद्योगिकी विश्वविद्यालय  
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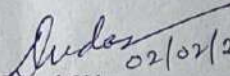
02/02/2023

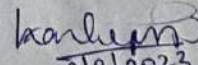
### NOTICE

This is to bring to your attention that the Mathematics and Computing Society, DTU (MACS-DTU) has conducted the interviews for the position of responsibilities for the Senior Council. The following candidates have been selected as the Senior Council for the session 22-23.

Name of the selected candidates	Position of Responsibilities
Aditya Maurya	President
Ishan Bhateja	Vice-President
Nikhil Gupta	Treasurer
Md. Sahil Ansari	Head of Operations
Keshav Nath	Head of Research

In case of any further queries/inquiries, more information, and updates, you can contact us at [macs@dtu.ac.in](mailto:macs@dtu.ac.in).

  
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02/2/2023  
TRASHA GUPTA  
FACULTY CO-ADVISOR  
MACS-DTU

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## Orientation 2022-2023

### 9th December 2022

On the 9th December 2022. MACS DTU organized its orientation session for freshers that showcased a massive participation of more than 250 enthusiastic freshers. The event took place at SPS9 - Pragya Bhavan. The aim of the event was to provide academic assistance to aspiring students, explaining the purpose and perks of joining MACS, explaining road maps for coding and placements and interaction with seniors. The event started with an introduction of MACS-DTU. Further discussions were conducted about what the society is all about, perks of joining MACS and why you should join MACS. A slide covering the syllabus of applied mathematics was there to help students with their further academics, including slides covering implementation of mathematics and computing in various fields like quantitative finance, machine learning and artificial intelligence. Then came the most awaited section about cracking internships, followed by a discussion of mathematical circle, a recent initiative of MACS, and slides covering past year events conducted by MACS. This was followed by an excellent introduction to programming in Python—held by Mohit Uniyal, Co Founder of Coding Minutes. Basic CS concepts were covered followed by a discussion on data science and analysis and DSA. Then there was discussion about competitions and events conducted by MACS that included the machine learning hackathon and MACS exclusive events like mathletics, mathematics relay and much more. Further slides covered zealous and talented seniors with multiple offers and internship offers. The meet wound up after a meeting with seniors session that was both fun and interactive. The event concluded with a positive note and participants showed immense enthusiasm in being a part of society.



**The MACS COUNCIL at Orientation 2022-2023**



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## EVENTS

### ML Hackathon - Weather Forecast Challenge:

May 29, 2022 no

After a series of webinars on Machine Learning, MACS-DTU, in collaboration with Bitgrit Inc., conducted a hackathon designed around the domain of Machine Learning and Data Science. The goal of the competition was to develop machine learning model to predict the weather of a place using the rubrics. The participants were supposed to submit their solutions in the required format up to 8th June 2022. The participants were allowed to make multiple submissions in order to increase their chances of winning.



To ease the process, a server was set up on discord, apart from a WhatsApp group.

Database and resources were provided by Bitgrit in assistance with MACS. With the help of these, the participants were able to receive a prediction accuracy of about 89 per cent. This further prompted them to improve their model and achieve higher.

Abhijit Rathod secured the first position, followed by Eresh Mittal.

The event was quite successful regarding the number of registrations and enthusiasm. It was a learning experience for participants, as was evident from their feedback. More than 100 registrations from MACS DTU were recorded for the challenge.

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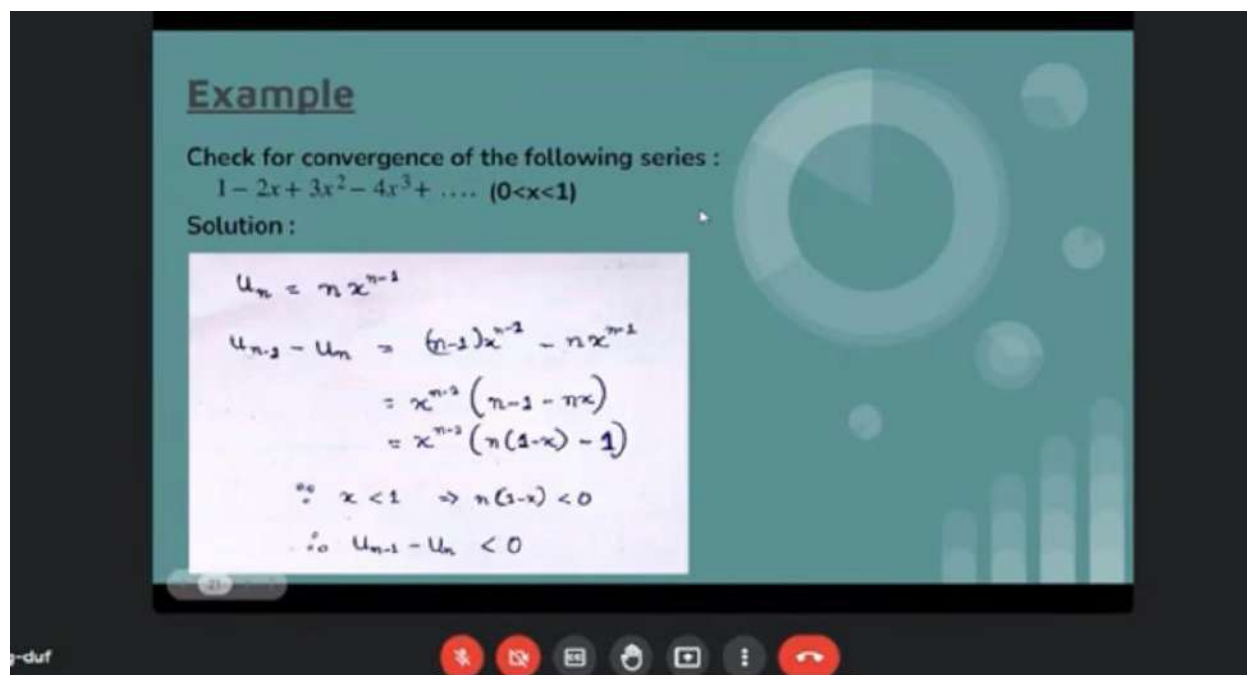
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## **MA101: SIG**

29th December and 30th December 2022

29th and the 30th of December 2022 marked an eventful and pleasant close for the year. The MACS SIG event took place on Google meet and witnessed a massive participation of more than 100 enthusiastic learners along with shrewd seniors. The events went on for around an hour on both days. The aim of the events was to impart a sound knowledge of the Mathematics and CS mid-semester syllabus to the students through teaching and a discussion of the important PYQs.

Freshers were introduced with the SIG program of MACS and the first unit of MA101 i.e sequences and series was covered ; including discussions about various tests for convergence of infinite series' and a short lesson Taylor and Mclaurin series.



**Example**

Check for convergence of the following series :  
 $1 - 2x + 3x^2 - 4x^3 + \dots$  ( $0 < x < 1$ )

Solution:

$$u_n = nx^{n-1}$$
$$u_{n+1} - u_n = (n+1)x^n - nx^{n-1}$$
$$= x^{n-1}(n+1 - nx)$$
$$= x^{n-1}(n(1-x) + 1)$$

$\because x < 1 \rightarrow n(1-x) > 0$

$\therefore u_{n+1} - u_n > 0$

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## **CS FUNDAMENTALS : SIG**

*31th December 2022*

This SIG focusing on introductory CS was extremely packed and successful. The focus was on covering a wide range of topics so that the freshers have a good overview of the topics. First a short lecture on programming and flowcharts were followed by a fascinating discussion on unary , binary operators , conditional statements and so on. The SIG also went into various programming concepts like loops, if - else statements , breaks etc,.



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# INVICTUS 2023:

*Feb 13th ,14th and 15th, 2022*

Invictus is the annual technical fest of Delhi Technological University. Invictus 23 was organized on aforementioned days and brought aboard all the technical societies of DTU in this odyssey to make this fest captivating and knowledge enriched by conducting a multitude of brainstorming events.

MACS, the Mathematics and Computing Society of DTU was a major contributor in the success of this fest and led the logistics department. MACS DTU conducted multiple events, and in total, there were 777 registrations. The event, as a whole, was a great success, thanks to the significant number of skilled participants who participated in the various events and exhibited exceptional competence in addressing the challenges presented. We created and managed a total 4 events , namely :

1. Mathletics
2. Chess Warfares
3. Greedy Knight
4. Decyber



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## **Greedy Knight**

On 14th Feb 2023, MACS DTU organized the GREEDY KNIGHT event as part of INVICTUS 23. With 218 registrations, the event garnered a remarkable turnout of highly skilled participants who exhibited impressive problem-solving skills in devising effective tactics to overcome the limitations. The event was undoubtedly a resounding success. The game posed a challenge to collect as many coins as possible while maneuvering through a life-sized chessboard as a standard knight would. Each participating group had a time limit of 1 minute. The event offered cash prizes worth 10,000. Parth Jain bagged 1st place, with Aditya Pandey claiming 2nd place and Aryan Garg coming 3rd.



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## **Chess Warfare**

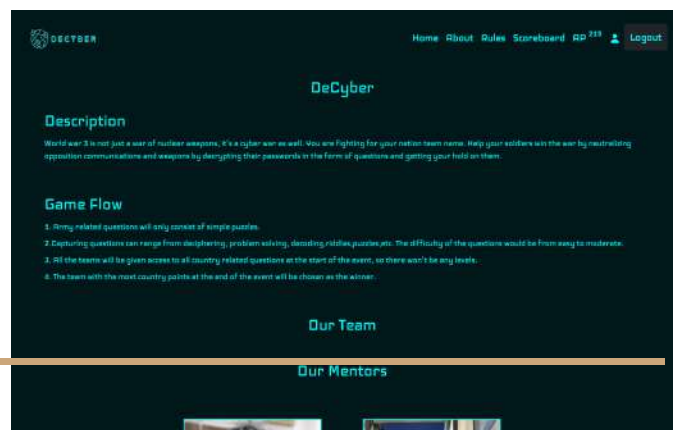
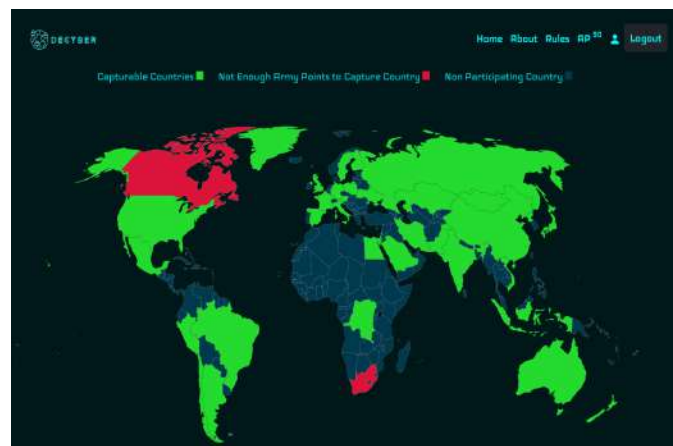
On 13th Feb 2023, MACS DTU organized the Chess Warfare event as part of INVICTUS 23. The event attracted an impressive turnout of 245 highly skilled participants who demonstrated exceptional ingenuity in developing effective strategies to overcome the challenges. It was an undeniable success. This was a classic over-the-table chess tournament that was organized very carefully and professionally by the team at MACS-DTU. The players faced-off in 5 successive rounds culminating in a single victor. The event offered cash prizes worth 10,000, which were won by Uttam Prakash Sharma coming 1st, Mayank Pal claiming 2nd place, Roshan Hari coming 3rd and Aditya Bansal being the 1st runner up.





## Decyber

On 15th Feb 2023, MACS DTU organized the DeCyber event as part of Invictus 23. Despite the moderate turnout of 163 registrations, the event was a tremendous success, owing to the impressive array of highly skilled participants who exhibited remarkable competence in tackling the challenges presented. The contest featured a virtual battlefield created by the MACS DTU team ; where participating teams defend their nations and defeat their opponents by decrypting passwords and neutralizing enemy communications. They offered the winning teams cash prizes worth 10,000. Team Bateman earned first place, with FMDUnited and Chad101 coming 2nd and 3rd respectively.



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## **Mathletics**

On 14th Feb 2023, MACS-DTU, MACS DTU organized A head-scratching and challenging mathematical quiz, as part of Invictus 23. It was a thrill-filled 2 rounds followed by a grand faceoff finale. The event was hosted offline in the Campus between 1PM and 3PM. Despite the modest number of 163 registrations, the event was a resounding success, primarily due to the exceptional caliber of skilled participants who showcased their expertise in addressing the challenges posed. The winners have been awarded a cash prize worth Rs. 10,000. The participants really enjoyed the Competition with participants thanking MACS DTU for an event filled with vigor and enthusiasm. Parvez Ahmed bagged 1st place, with Rahul Verma earning 2nd place and Aryan Chaudhary claiming the 3rd place.



## CHESS WARFARE REGISTRATIONS

ID	Organization Name	1st Year	2nd Year	3rd Year	4th Year	5th Year	Players	Teams
14743	Amity School of Engineering & Technology (AMITY), Noida						1	1
102709	Bhagwan Parshuram Institute of Technology (BPIT), Delhi	1	1	1			18	18
185	Birla Institute of Technology (BIT), Mesra, Ranchi		1				2	2
213092	Chaudhary Brahm Prakash Ayurved Charak Sansthan (CBPACS), Delhi						1	1
158590	City Children's Academy						1	1
16635	Deen Dayal Upadhaya College (DDUC), University of Delhi (DU), New Delhi	2	2	1			8	8
219540	Delhi Skill and Entrepreneurship University, Delhi	1	2				3	3
306	Delhi Technological University (DTU), New Delhi	20	20	7	4		114	114
117472	Department of Commerce (DoC), Delhi School of Economics (DSE), New Delhi	2					2	2
111698	Dr. Akhilesh Das Gupta Institute of Technology and Management (ADGITM), New Delhi						1	1
15917	G. B. Pant Engineering College (GBPEC), New Delhi				1		1	1
476	Great Lakes Institute of Management (GLIM), Chennai		1				1	1
5090	Hansraj College (HC), University of Delhi (DU), New Delhi						1	1
174872	Hindu			1			1	1
606	Indian Institute of Technology (IIT), Madras						1	1
12326	Indira Gandhi Delhi Technical University for Women (IGDTUW), Delhi						2	2
720	Jaypee Institute of Information Technology (JIIT), Noida			1			1	1
10589	J.C. Bose University of Science and Technology, YMCA, Faridabad		1	2			4	4
106770	JIMS Engineering Management				1		1	1

	Technical Campus (JEMTEC), Greater Noida							
120723	Kalindi College (KC), University of Delhi (DU), Delhi		1				1	1
18890	KIET Group of Institutions (KIET), Ghaziabad			2			2	2
756	Kirori Mal College (KMC), University of Delhi, Delhi	1					2	2
114744	Krishna Engineering College (KEC), Ghaziabad, Uttar Pradesh			4			6	6
106216	Maharaja Agrasen College (MAC), University of Delhi (DU), Delhi						1	1
821	Maharaja Agrasen Institute of Technology (MAIT), New Delhi		1				3	3
824	Maharaja Surajmal Institute of Technology (MSIT), New Delhi	1					1	1
139746	Maharishi University of Information Technology (MUIT), NOIDA						1	1
12506	Manav Rachna University (MRU), Faridabad		1				1	1
950	National Institute of Technology (NIT), Hamirpur				1		1	1
967	Netaji Subhas University of Technology (NSUT), Delhi	1					1	1
10721	Rajdhani College (RC), University of Delhi	1		1			4	4
13218	Ram Lal Anand College, University of Delhi		1				1	1
1170	Shaheed Sukhdev College of Business Studies (SSCBS), University of Delhi (DU), Delhi	1					1	1
10603	Shivaji College (SC), University of Delhi	1					3	3
1178	Shiv Nadar University (SNU), Greater Noida						1	1
693122	Shiv vani model sr sec school						1	1
104605	Sri Guru Gobind Singh College of Commerce (SGGSCC), University of Delhi (DU), Delhi		1	1			4	4
436562	Sri Venketeswara College, University of Delhi(DU)						1	1
140453	State Institute of Engineering & Techonology, Nilokheri			1			1	1
215598	SVKM's Narsee Monjee Institute of						1	1

	Management Studies (Deemed to be University), Mumbai							
146420	University School of Biotechnology - Indraprastha University (GGSIPU), Delhi						1	1
1381	University School of Information, Communication and Technology (USICT), GGS Indraprastha University (GGSIPU), New Delhi	1					1	1
135703	Vivekananda Institute of Professional Studies (VIPS), Delhi	1					3	3
1373	Zakir Husain Delhi College, Delhi University, Delhi	1	1	3			8	8

## DECYBER REGISTRATIONS

ID	Organization Name	1st Year	2nd Year	3rd Year	4th Year	5th Year	Players	Teams
102709	Bhagwan Parshuram Institute of Technology (BPIT), Delhi	2					10	5
219540	Delhi Skill and Entrepreneurship University, Delhi		1				2	2
306	Delhi Technological University (DTU), New Delhi	22	17	10			111	77
12064	Dyal Singh College (DSC), Delhi University, Delhi	1	1				6	3
10530	Faculty Of Engineering, Jamia Millia Islamia (FET JMI), Delhi	1					2	1
336093	IK Gujral Punjab Technical University, Amritsar, Punjab			1			1	1
627	Indraprastha Institute of Information Technology (IIIT), Delhi			1			2	1
120723	Kalindi College (KC), University of Delhi (DU), Delhi	1	1				3	2
114744	Krishna Engineering College (KEC), Ghaziabad, Uttar Pradesh			4			4	2
106216	Maharaja Agrasen College (MAC), University of Delhi (DU), Delhi						2	1
821	Maharaja Agrasen Institute of Technology (MAIT), New Delhi						1	1
133850	Miranda House, University College for Women (University of Delhi), Delhi			1			8	4
967	Netaji Subhas University of Technology (NSUT), Delhi		1				2	1
10721	Rajdhani College (RC), University of Delhi	1					1	1
1178	Shiv Nadar University (SNU), Greater Noida	1					4	2
104605	Sri Guru Gobind Singh College of Commerce (SGGSCC), University of Delhi (DU), Delhi						2	1
13856	The University Of Queensland			1			1	1
1373	Zakir Husain Delhi College, Delhi		1				1	1

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	University, Delhi							
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## MATHLETEICS REGISTRATIONS

ID	Organization Name	1st Year	2nd Year	3rd Year	4th Year	5th Year	Players	Teams
102709	Bhagwan Parshuram Institute of Technology (BPIT), Delhi						3	3
12045	Daulat Ram College (DRC), Delhi University (DU), Delhi			1			1	1
16635	Deen Dayal Upadhyaya College (DDUC), University of Delhi (DU), New Delhi	1					1	1
129005	Delhi Public School, Rohini						1	1
219540	Delhi Skill and Entrepreneurship University, Delhi	1					1	1
306	Delhi Technological University (DTU), New Delhi	17	14	12			99	99
569530	Draft Registrations				1		1	1
10530	Faculty Of Engineering, Jamia Millia Islamia (FET JMI), Delhi	2					2	2
106646	Guru Tegh Bahadur Institute of Technology (GTBIT), New Delhi						1	1
12326	Indira Gandhi Delhi Technical University for Women (IGDTUW), Delhi			2			2	2
720	Jaypee Institute of Information Technology (JIIT), Noida	1					1	1
10589	J.C. Bose University of Science and Technology, YMCA, Faridabad						1	1
120723	Kalindi College (KC), University of Delhi (DU), Delhi		1				1	1
114744	Krishna Engineering College (KEC), Ghaziabad, Uttar Pradesh			5			7	7
821	Maharaja Agrasen Institute of Technology (MAIT), New Delhi	1					2	2
13218	Ram Lal Anand College, University of Delhi	1	1				2	2
140453	State Institute of Engineering & Techonology, Nilokheri			1			1	1
12756	The NorthCap University (NCU), Gurgaon			2			2	2



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1373	Zakir Husain Delhi College, Delhi University, Delhi			1			2	2
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## GREEDY KNIGHT REGISTRATIONS

ID	Organization Name	1st Year	2nd Year	3rd Year	4th Year	5th Year	Players	Teams
12593	Atma Ram Sanatan Dharma College (ARSD)- University of Delhi (DU)- New Delhi	1					1	1
102709	Bhagwan Parshuram Institute of Technology (BPIT), Delhi						5	5
11563	BML Munjal University (BMU)-Gurgaon		1				1	1
213092	Chaudhary Brahm Prakash Ayurved Charak Sansthan (CBPACS)- Delhi						1	1
16635	Deen Dayal Upadhaya College (DDUC)- University of Delhi (DU)- New Delhi	1					1	1
305	Delhi School of Management- Delhi Technological University (DSM DTU)- Delhi						1	1
219540	Delhi Skill and Entrepreneurship University-Delhi	2	1				5	5
532020	Delhi Skill and Entrepreneurship University- Rajokri Campus	1					1	1
306	Delhi Technological University (DTU)- New Delhi	21	27	11	2		130	130
569530	Draft Registrations		1		1		2	2
111698	Dr. Akhilesh Das Gupta Institute of Technology and Management (ADGITM)- New Delhi						1	1
12064	Dyal Singh College (DSC)- Delhi University- Delhi	1					2	2
10530	Faculty Of Engineering- Jamia Millia Islamia (FET JMI)- Delhi	2					2	2
15917	G. B. Pant Engineering College (GBPEC)- New Delhi				1		1	1
106646	Guru Tegh Bahadur Institute of Technology (GTBIT)- New Delhi						1	1
12326	Indira Gandhi Delhi Technical University for Women (IGDTUW)-						1	1

	Delhi							
720	Jaypee Institute of Information Technology (JIIT)- Noida			2			2	2
10589	J.C. Bose University of Science and Technology- YMCA- Faridabad		2				2	2
106770	JIMS Engineering Management Technical Campus (JEMTEC)- Greater Noida				1		1	1
104645	Keshav Mahavidyalaya (KMV)- University of Delhi (DU)- Delhi						1	1
18890	KIET Group of Institutions (KIET)- Ghaziabad			2			2	2
114744	Krishna Engineering College (KEC)- Ghaziabad- Uttar Pradesh			3			3	3
821	Maharaja Agrasen Institute of Technology (MAIT)- New Delhi		1				2	2
824	Maharaja Surajmal Institute of Technology (MSIT)- New Delhi	1					1	1
967	Netaji Subhas University of Technology (NSUT)- Delhi						1	1
10721	Rajdhani College (RC)- University of Delhi	1					2	2
1170	Shaheed Sukhdev College of Business Studies (SSCBS)- University of Delhi (DU)- Delhi	1					1	1
1178	Shiv Nadar University (SNU)- Greater Noida						2	2
541865	Sri Venkateswara College (DU)- Delhi						1	1
140453	State Institute of Engineering & Techonology- Nilokheri			1			1	1
135703	Vivekananda Institute of Professional Studies (VIPS)- Delhi	1					2	2
1373	Zakir Husain Delhi College- Delhi University- Delhi	2	1	1			8	8