DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE

MATH PHILE

PG & RESEARCH DEPARTMENT OF MATHEMATICS

ABOUT SIP

The student induction program is a passport to a smooth transition into university life. It's more than just orientation; it's student's introduction to the academic, social, and cultural landscape of their new home. From campus tours to academic advising, social events to informational sessions, it's designed to equip one with the knowledge and resources they need to thrive.

Overall, the student induction program sets the stage for a successful and fulfilling university experience by providing essential information, fostering connections, and empowering students to thrive academically, socially, and personally.

OUTCOME

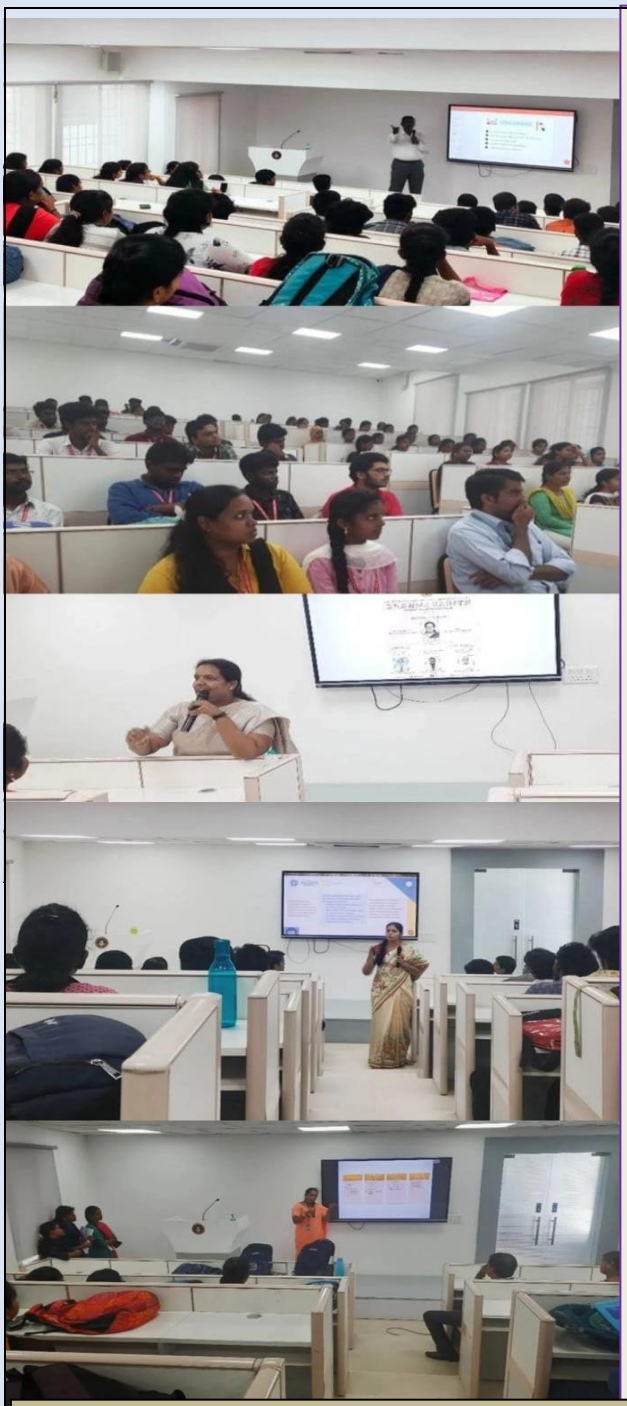
Induction programs help identify students' support needs early on, allowing institutions to provide targeted assistance such as academic advising, counseling, or tutoring. This proactive approach to support contributes to student retention and overall satisfaction.

the outcome of a student induction program is multifaceted, encompassing academic integration, social engagement, personal development, support identification, and cultural understanding. These outcomes collectively contribute to fostering a positive and supportive academic environment conducive to student success and well-being.

NMD & INVESTITURES

National Mathematics Day is observed on December 22nd each year in India to commemorate the birth anniversary of the renowned Indian mathematician, Srinivasa Ramanujan. Ramanujan was born on December 22, 1887, and his contributions to mathematics are celebrated worldwide. The day is marked with various events, competitions among our students as an intra-departmental event, aimed at promoting the importance of mathematics and encouraging interest in the subject among students and the general public. Dec 22 serves as a reminder of Ramanujan's remarkable achievements and his significant impact on the field of mathematics.

On that very special day, we also had our investitures ceremony. The inauguration of our club ‘Brahmaganith’ happened, club current academic year secretaries were announced, Student cabinets were formed and they received their positions that enhance and promote the department to its next level.



WEEKLY SEMINARS

Weekly seminars play a crucial role in networking and community building. These gatherings provide opportunities for individuals to connect with like-minded professionals, establish collaborations, and forge meaningful relationships. Networking within the seminar setting not only expands one's professional circle but also cultivates a supportive environment where ideas can flourish and collaborations can thrive.

the significance of weekly seminars lies in their ability to foster growth, collaboration, and innovation within academic and professional communities. By serving as hubs for knowledge sharing, skill development, networking, motivation, and continuing education, these gatherings play an indispensable role in shaping the trajectory of individuals and advancing collective endeavors.

"CONTRIBUTION OF OUR COUNTRY TO MATHEMATICS" BY Dr. D. UTHRA

"APPLICATION OF MATHEMATICS IN ENGINEERING" BY Dr. G. MEENA DEVI

“OPPORTUNITIES IOFMATHEMATICS” BY Dr. P. SUMATHI

“CHALLENGES AND OPPORTUNITIES IN PLACEMENT” BY Mr. M. BALA MURALI KRISHNAN

“APPLICATION OF MATHEMATICS IN DATA ANALYTICS” BY Dr. N. INDRAJITH

“DEFINING YOURSELF” BY Dr. M. AKHILA

“OPERATIONS RESEARCH-APPLICATIONS & E-RESOURCE” BY Dr. T. BHARATHI

“A STUDY ON STABILITY ANALYSIS OF FDE” BY Dr. K. KALIRAJ

OUTCOME

Seminars facilitate the exploration of diverse topics and viewpoints, enabling students to broaden their intellectual horizons beyond the confines of traditional classroom learning. Through exposure to new ideas and research, students enhance their knowledge base and develop a deeper appreciation for their field of study.

The outcome of weekly seminars for students extends beyond mere academic achievement, encompassing intellectual stimulation, skill enhancement, and community building. By fostering active engagement, promoting knowledge acquisition, facilitating skill development, nurturing networking opportunities, and encouraging feedback and reflection, seminars play a pivotal role in shaping well-rounded and empowered individuals poised for success in academia and beyond.

EVS TRIP

An EVS trip for students typically refers to an Environmental Studies or Environmental Science trip designed to provide students with hands-on learning experiences related to the environment, ecology, conservation, and sustainability.

Trip was organized by our institutions, with the aim of fostering environmental awareness and stewardship among students.

And this year, marking the 60th year of our department in our college, to cherish our diamond jubilee, our students had planted 60 saplings.

Along with the service to nature, our students also engaged with government school students, they entertained and educated them, thus at the end of the day, our students had also learnt about service to society.

OUTCOME

Overall, an Environmental Studies trip for students offers a transformative learning experience that extends beyond the classroom, empowering students to become informed, engaged, and responsible stewards of the environment. By combining academic rigor with practical experience and community engagement, these trips play a vital role in shaping environmentally literate and socially conscious citizens capable of contributing to a sustainable future. It enhance understanding of environmental concepts, principles, and issues through experiential learning and hands-on fieldwork. It also enhance application of theoretical knowledge to real-world contexts, reinforcing classroom learning and fostering critical thinking skills. Students get exposure to diverse ecosystems, habitats, and environmental phenomena, providing a holistic perspective on environmental science and sustainability.

OUR IV

Industrial visits are commonly organized for students studying fields such as engineering, manufacturing, technology, management, and other related disciplines, but here, in our institution, we believe that, our students should also have an industrial visit to know the dept of their subject and how they applied in our daily life.

These visits serve as a practical supplement to theoretical classroom learning, helping participants bridge the gap between academic knowledge and practical application in a professional setting. Additionally, industrial visits can inspire students, spark their interest in specific industries or career paths, and provide valuable networking opportunities.

OUTCOME

Students gain practical insights into real-world industrial operations, which complement theoretical learning in classrooms. They get a chance to interact with professionals in their field of study, potentially leading to internships, mentorship, or job opportunities in the future.

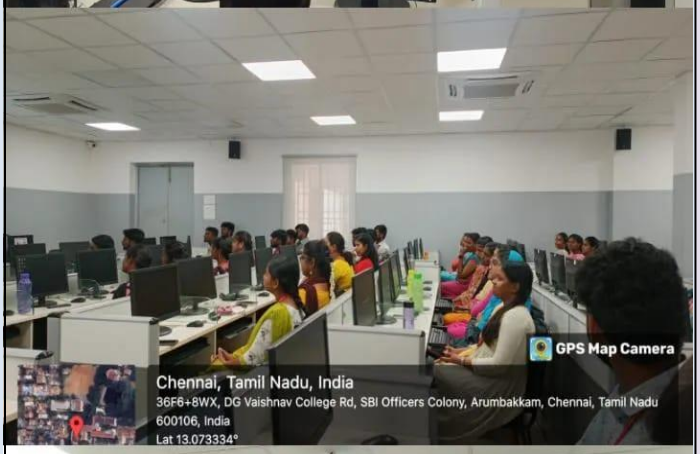
Industrial visits can help students explore different career paths within their field and make informed decisions about their future careers. Working together during the visit fosters teamwork and collaboration among students, which are essential skills in the workplace.

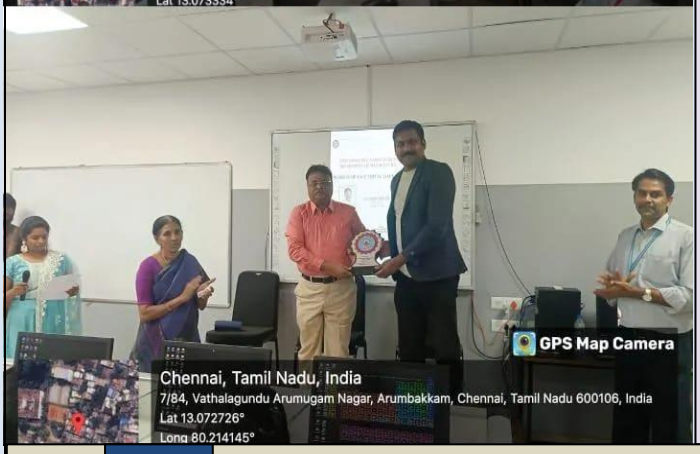
ALUMNI MEET

Our alumni meet serve as an opportunity for alumni to catch up with old friends, make new connections, and exchange professional or personal insights.

These events are not only about socializing but also serve practical purposes. Our meets facilitate mentorship opportunities, career guidance, and professional networking. We also showcase our alumni's achievements, updates, and future plans, fostering a sense of pride and continued involvement among former students.

Overall, our alumni meets essentially maintained the sense of community and camaraderie among graduates, promoting lifelong connections with the institution, and contributing to the overall growth and success of both alumni and their alma mater.





WORKSHOP

Workshops for students are interactive learning sessions designed to enhance various aspects of their academic, personal, and professional development.

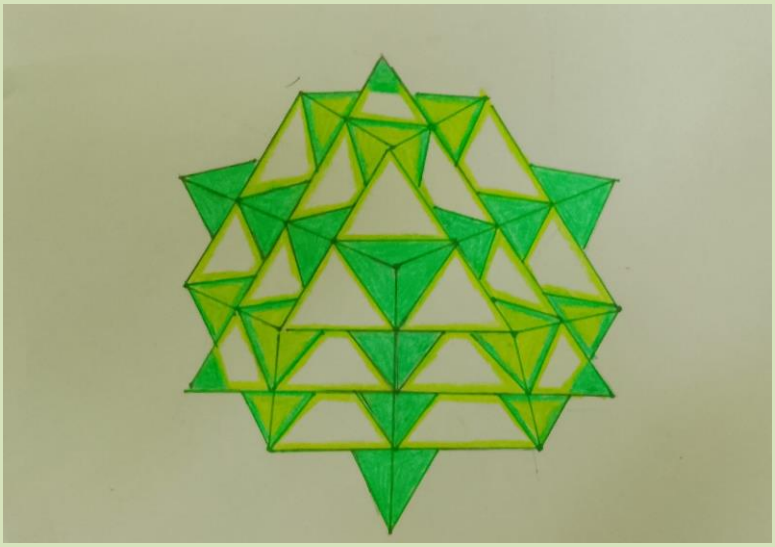
In this academic year, we have conducted two workshops. One is on “ETHICAL HACKING” and the other one is on “AI TRENDS”.

Participants delve into various aspects of AI, including emerging technologies, industry applications, and future trends. Through interactive sessions and discussions, attendees gain insights into cutting-edge AI innovations and their potential impact on society and businesses.

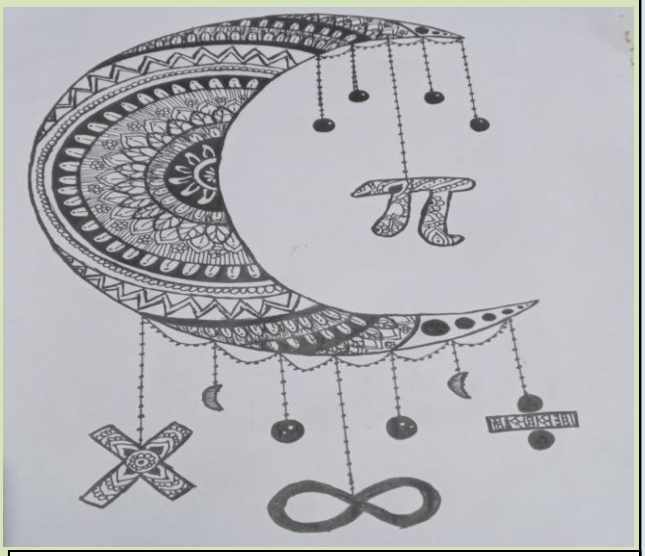
OUTCOME

Participants gain a deeper understanding of hacking techniques, AI advancements, and their implications for cyber security and society as a whole. The workshop fosters collaboration and networking among participants, creating opportunities for knowledge sharing, collaboration on projects, and building professional relationships in the cyber security and AI communities. Attendees may embark on innovative projects and research initiatives that leverage the intersection of hacking techniques and AI technologies to address real-world challenges and opportunities.

STUDENTS' ART GALLERY



BY NANDHINI – I MPC



BY INDUJA – I MPC

BY BAVIDRA M.N – II MAP

BY DEEPABHARATHI P. –II MAP

STUDENTS' POETIC WORLD

QUEEN OF SCIENCES

Our Queen, merry we sing!

Full of numbers and signs,

If you know you'll definitely shine!

Bigger it gets when we add,

Smaller it gets when we subtract!

Right side, it'll always bigger,

Know it, don't be a fissure!

Maths has lower bound and upper bound,

With it, we will get the lover bond!

Every element in the group has an inverse,

Our "Queen of Science" is in the top of the universe!

LIKHITHA KANNA B R

I MSc

KONIGSBERG

The birds were singing in one bright morning,

I woke up from my dreaming , wondering right !?

Looked out the window , there's a river

And it's raining,

Shining like a gold and it said I'm pregle ,

Question of miracle ,

I know it's a trouble ,

No - Now I don't wanna solve it ,

But I searched it on internet,

It's not about the river but the clueless bridges,

And there's not just one but the bridges were seven ,

No-Now I don't wanna solve it ,

But someone has solved it(already)

They said it's a lion hard ruler of time ,

I cannot thing and it's just my mind ,

But there is this person called leonhard Euler

Who was just so fine ,

Now -the answers I don't want it ,

But I searched on internet ,

The question longed as a mystery,

And he used graph theory,

It looked so miracle ,

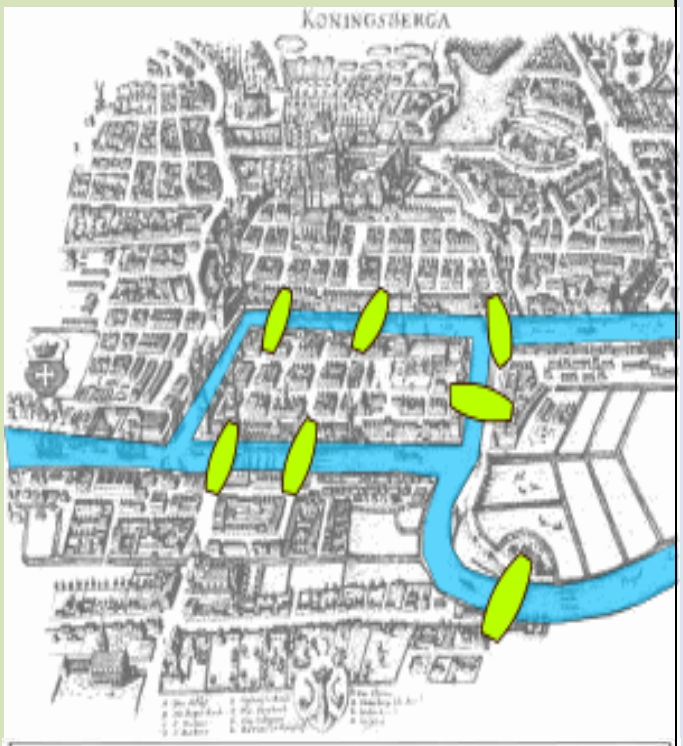
But in real it's solvable ,

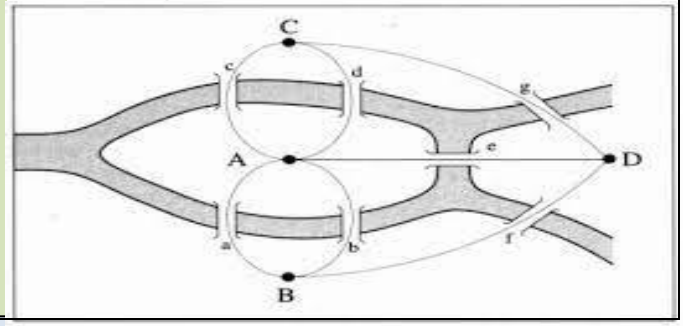
Am I look like a fooler ,

But I know the Euler ,

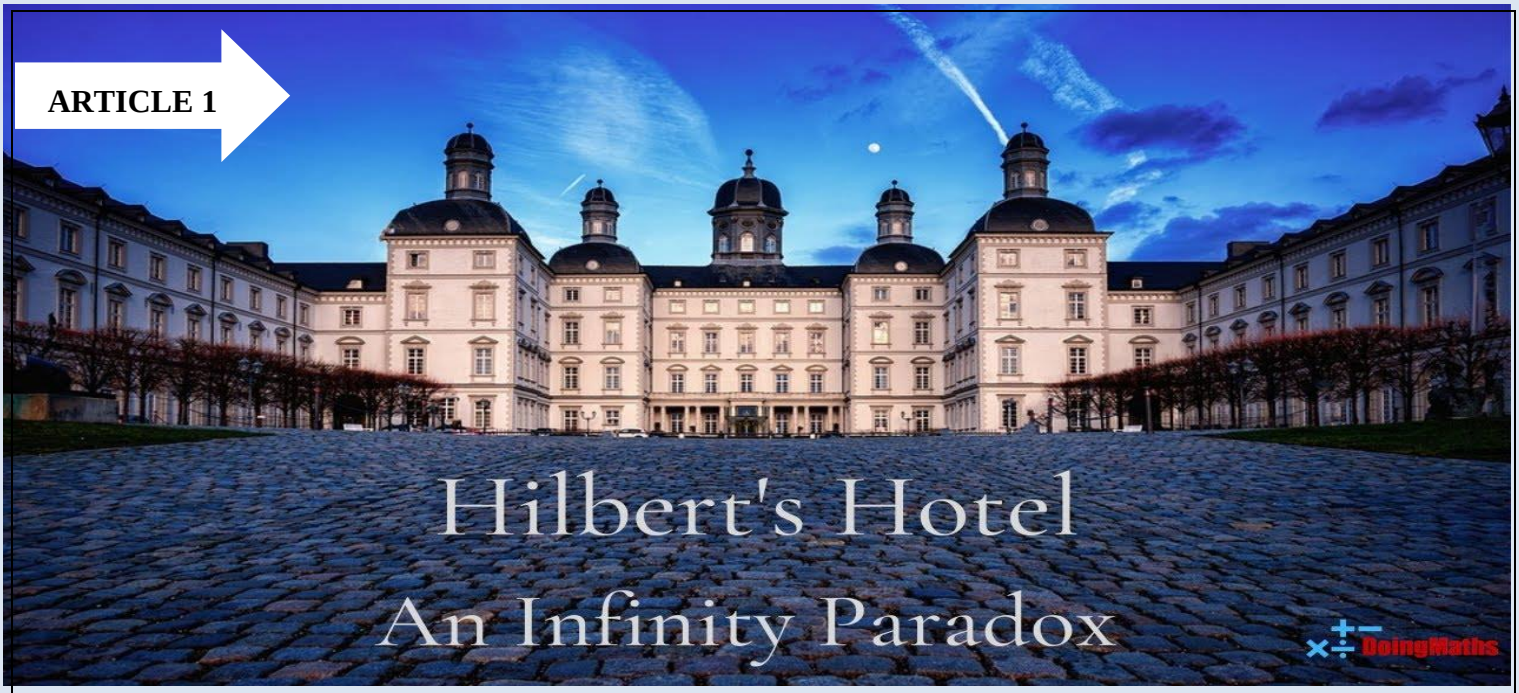
And now the konigsberg is solvable .

BY YAMINI G – II MSc





ARTICLE 1



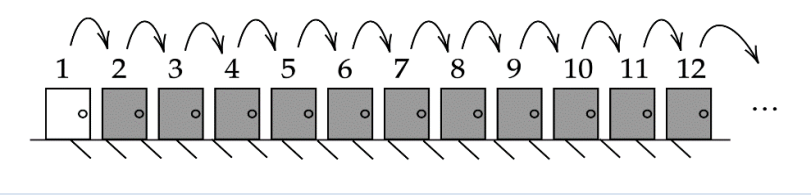
WHAT IS PARADOX ?

When looking at mathematics, we can come across many startling concepts that are counterintuitive and appear to be false, but with careful thinking can be proven to be mathematically true. We call these situations as paradoxes, which are highly counter – intuitive to our common sense, but by resolving in proper way may lead to proper understanding.

Hilbert's Infinite Hotel is another such example.Also known as the 'Hilbert's Hotel', the Paradox of the Grand Hotel was first introduced by the German mathematician David Hilbert (1862–1943) in a lecture of 1924. It is a thought experiment on the nature of infinite numbers which gives some surprising results.

Suppose after a long day on the road, you arrive at the Grand Hotel exhausted and in dire need of rest. The hotel has a large sign out on the front boasting of its infinite number of rooms, but unfortunately all of the rooms are occupied. You are about to leave when the manager tells you that this isn't a problem; he can find room for you.

He asks the guest in room number 1 to move into room number 2. He asks the guest from room 2 to move into room 3 and so on. If a guest started in room *n*, they move into room *n*+1. He then hands you the key to room 1. Even though this infinite hotel was fully occupied, the manager has still managed to find you a room.



The shifting scheme is f(n)=n+1

An Infinite Number of New Guests

But what about if an infinite number of guests appeared looking for rooms? This isn't a problem either. This time the manager would simply ask each current room occupant to move to the room that is double theirs, so room 1 moves to room 2, room 2 moves to room 4 and so on, each guest moving from n to $2n$. This would leave the odd-numbered rooms free. As there are an infinite number of odd numbers, our infinite number of new guests can then move into these.

The shifting scheme is $f(n) = 2n$

Thus the manager has resolved the problem even when infinite guests suddenly turns out to the grand hotel.

All this happens because of two reasons:

(1) The hotel contains infinitely many rooms

(2) The shifting procedure provides a bijection between the original room numbers and newly shifted room numbers.

We see this concept as Countable sets in Mathematics and this idea has allowed the manager to devise such scheme so that the newly arriving guests can get a room surely. Though mathematically we have resolved the situation for providing new rooms to arriving guests, practically this is not possible since any hotel would contain only finite number of rooms and the schemes provided would work only for hotels with infinite rooms.

Original room	New room
1	2
2	3
3	4
...	...
n	n+1

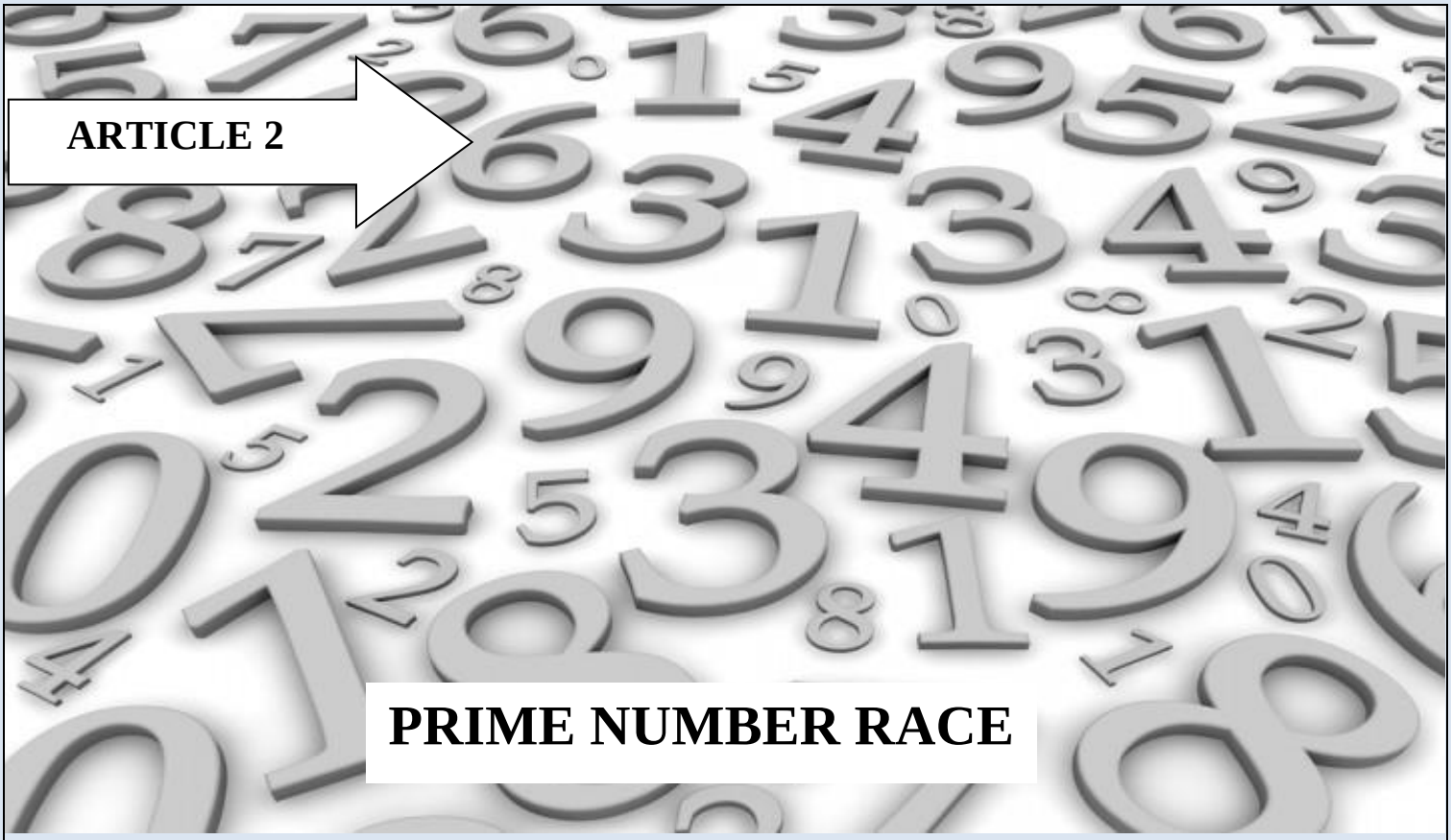
F(n)=n+1

Original room	New room
1	2
2	4
3	6
...	...
n	2n

F(n)=2n

BY NAVENAA A.

UG MATHEMATICS(DDGDVC)



ARTICLE 2

PRIME NUMBER RACE

There's nothing quite like a day at race. The quickening of the pulse as the starter fire his pistol , the thrill when your favourite contestant speeds out into the lead or the distress if another contestant dashes out ahead of yours. And the accompanying fea r (or hope) that the leader might change. And what if the race is a marathon? May be one of the contestants will be more stronger than others , taking a lead and running at the head of the pack for the whole race. Or perhaps the race will be more dramatic, with the lead changing again and again for as long as one cares to watch.

We know people are familiar with track races but have you ever heard about prime number race? What if our race involves prime number, separated into two teams depending on the remainder when they are divided by 4(i.e.mod4) and now we call it as Mod 4 race with two teams namely Team 3 and Team 1 .

Team 3(p congruent to 3(mod 4):

03,07,11,19,23,31,43,47,59,67,71,79,83,103,107...

Team 1(p congruent to 1(mod 4)):

05,13,17,29,37,41,53,61,73,89,97,101,109,...

In this Mod 4 race, Team 3 contains the prime of the form 4n+3 and Team 1 contains the primes of the form 4n+1. The Mod 4 race has just two contestant and is quite same as a marathon, the far most lengthiest race that ever could happen. From the data what we have,it appears that team 3 is always in the lead; that is upto any given point x.And just like Team 3, Team 1 seems to be a comparable opponent to Team 3, to any given point x .

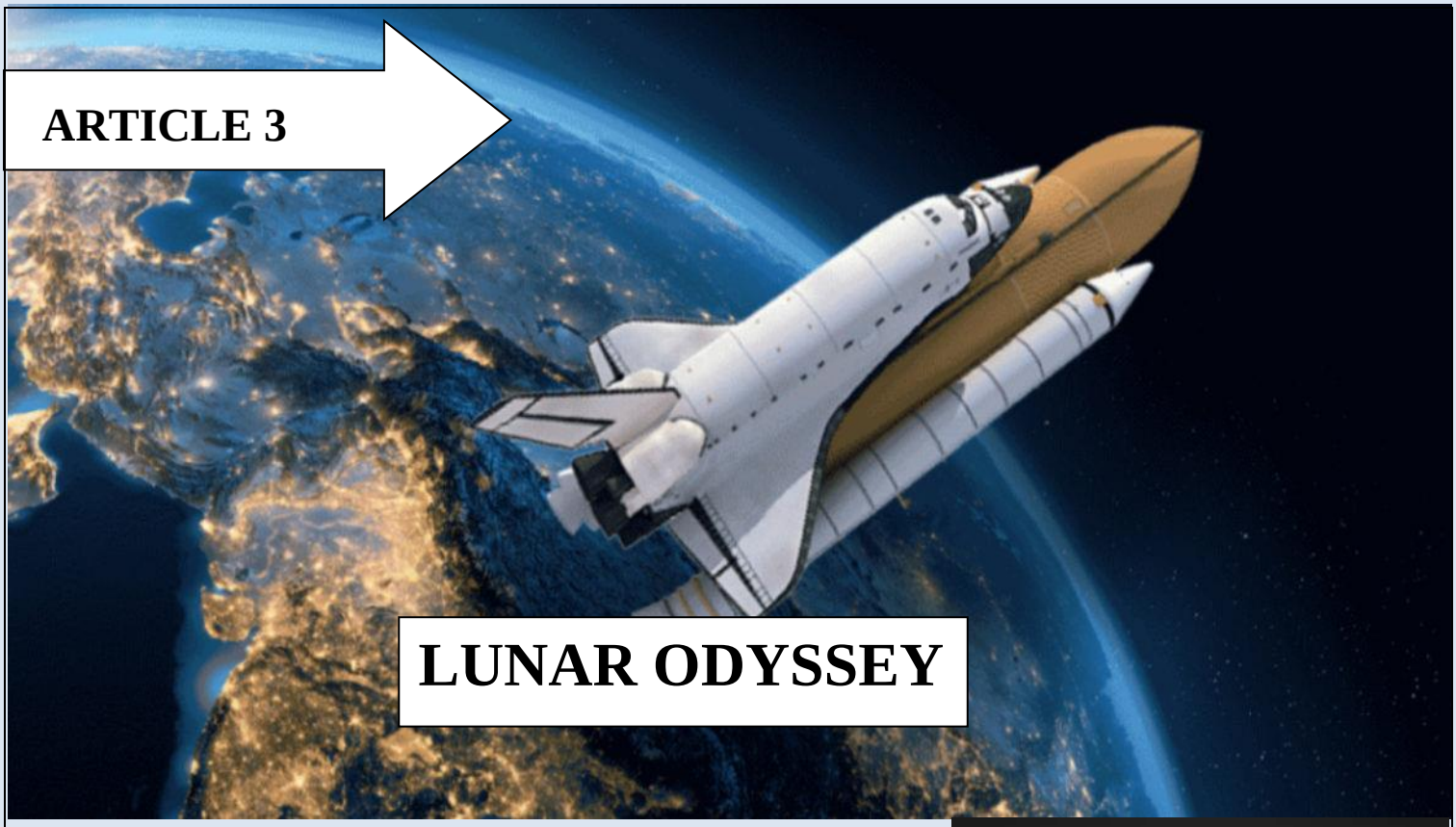
And unlike a Marathon which would end eventually, the Mod 4 race act as a far most lengthiest race that will keep on going with no ending and with no winner; and that's the beauty of it . Here below, the table demonstrates the infinite race of Mod 4 up to certain x.

Table: Number primes of form 4n+3 and 4n+1 up to certain x .

X	Number of primes 4n+3 up to x	Number of primes 4n+1 up to x
100	13	11
200	24	21
300	32	29
400	40	37
500	50	44
600	57	51
700	65	59
800	71	67
900	79	74
1000	87	80
2000	155	147

BY MOHAMMED JAHIR HUSSAIN N.

UG MATHEMATICS (DDGDVC)



ARTICLE 3

LUNAR ODYSSEY

Chandrayaan 3 , the third lunar exploration mission of Indian Space Research Organization (ISRO), stands as a testament to India's dedication to space exploration and scientific advancement . At the art of this remarkable endeavor lies the omnipresent force of mathematics . From the mission planning to spacecraft navigation , communication and scientific advancement to India's greatest science central to it's success is the indispensable role of Mathematics ; which serves as the guiding force in every aspect of the mission . Here is to unravel the significance of Mathematics in Chandrayaan3 , from mission planning to precise lunar landings and beyond .

TRAJECTORY AND ORBITAL MECHANICS

One of the fundamental challenge of lunar mission is plotting the spacecraft's trajectory from the path to reach the moon . Mathematics provides the tools for orbital mechanics and helping scientists to calculate the spacecraft trajectory. Engineers carefully accounts data of various celestial bodies and their gravitational force .Thus , ensuring Chandrayaan 3's path remains on course and optimize the fuel consumption for it's space journey.

Launch of ISRO's Chandrayaan 3 on july14 ,2023

LUNAR LANDING PRECISION

Lunar landing is the pinnacle of tension and triumph in any lunar mission . For Chandrayaan3, Mathematics calculus are at the art of achieving a successful landing . Advanced Algorithm governs the spacecraft descent by taking into the account of topography , gravity and velocity. Engineers leverage Mathematical modules to fine-tune the spacecraft's propulsion system, optimizing thrust during the descent to ensure a gentle , controlled landing on lunar surface.

COMMUNICATION SYNCHRONIZATION

In the vast experience of space, maintaining a seamless communication between earth and Chandrayaan 3 is a daunting task . Mathematics play a crucial role in achieving this feat . Precise timing and synchronization protocols are devised utilizing Mathematical Principles to the time delay in signal transmission to and from the moon . This ensures uninterrupted communication and reliable data transmission, enabling scientist to stay in contact with the spacecraft and receive invaluable scientific data.

DATA ANALYSIS AND SCIENTIFIC EXPLORATION

Chandrayaan 3 is equipped with state of the art scientific instrument, designed to unravel the moon's mysteries . The data controlled by these instrument undergoes extensive mathematical analysis. Scientists employs statistical methods and mathematical algorithms to interpret the vast amount of information to reveal the moon's geological composition, presence of water molecule and potential lunar resources.

SPACECAFT OPTIMIZATION AND RELIABILITY

Mathematics plays a pivotal role in spacecraft design and optimization . Engineers employs mathematical modeling and simulations to ensure the spacecraft's structural integrity , thermal management and power systems .These calculations are vital in creating lunar environment and prolonged space travel .

'How beautiful that was!' comments ISRO Chairman Somnath

On delivering the convocation address AT IIT Hyderabad he said that ISRO has gathered about 2000measurements from the previous Chandrayaan's effort.

"All of them finally come to us as graphs and curves. We have created an attachment to those graphs and curves . By looking at them , we can feel how they are progressing "-he said.

ABOUT US

Nestled within the academic enclave of Dwarka Doss Goverdhan Doss Vaishnav College is a department that stands as a beacon of intellectual rigor and scholarly pursuit – the Mathematics Department. With a rich history of academic excellence and a commitment to nurturing mathematical talent, the department embodies a culture of inquiry, innovation, and interdisciplinary collaboration.

At the heart of the Mathematics Department are its esteemed faculty members, renowned for their expertise across various mathematical domains. From pure mathematics to applied fields, the faculty's diverse research interests contribute to the department's vibrant intellectual environment.

Within the Mathematics Department at Dwarka Doss Goverdhan Doss Vaishnav College, there exists a vibrant community of passionate mathematicians united by their love for the subject – the Brahmaganith Club. Named after the Sanskrit word for mathematics, "Brahmaganith" embodies the club's dedication to exploring the boundless mysteries and beauty of mathematics through engaging activities, discussions, and events.

The Brahmaganith Club plays a pivotal role in enriching the academic experience of students within the Mathematics Department. Guest lectures by esteemed mathematicians, alumni panels, and workshops on specialized topics provide members with unique opportunities to expand their knowledge, gain insights into cutting-edge research, and explore potential career paths in mathematics and related fields. By bridging the gap between theory and practice, the club enhances students' understanding of the relevance and applications of mathematics in the real world.