



# ENGICO FIRST YEAR CONNECT NEWSLETTER

*an initiative of Science & Humanities Department*

**GOA COLLEGE OF ENGINEERING**

Quarterly Newsletter for First Year B.E. Students

**Edition 1**

**Jan - Mar 2023**

**Issue 1**

# 2023

H A P P Y N E W Y E A R

**Hi ENGICOS !**

You can find the following content in this edition:

Editor-in-Chief's Message | Principal's Message | Science & Humanities HOD's Message | First Year student awards & achievements | Student's Post | Faculty Interview | Roll of Honour 21-22 | Alumni Desk | Science & Humanities Department Activities | Science, Technology & Economics News | Motivational Corner | Upcoming Dates/Events



[engicofyconnect@gmail.com](mailto:engicofyconnect@gmail.com)

**VISION**  
**A TECHNICAL INSTITUTE**  
**WITH A FOCUS ON**  
**EXCELLENCE IN**  
**ACADEMICS, RESEARCH,**  
**INDUSTRY**  
**COLLABORATION AND**  
**NURTURING HUMAN**  
**VALUES IN STUDENTS.**

**MISSION**

1. Formulate & implement curriculum that ensures high academic standards.
2. Provide infrastructure that meets academic & advanced research requirements.
3. Collaborate with national, international institutions, laboratories and industries through student and faculty exchange programs and internships.
4. Undertake consultancy projects that are relevant to the state & nation.
5. Impart human values, awareness of environment and sustainable solutions in students and faculty.
6. Nurture innovation, entrepreneurship, leadership & resource management skills.



**Goa College of Engineering**

Six UG Programs have been accredited by the  
National Board of Accreditation(NBA)  
for three years till 30th June 2025

Electronics & Telecommunication Engineering  
Information Technology Engineering  
Electrical & Electronics Engineering  
Mechanical Engineering  
Computer Engineering  
Civil Engineering



*A Proud moment for Principal, Staff, Students Alumni & all Stakeholders!*

**ENGICO FIRST YEAR CONNECT**  
**NEWSLETTER**

**Published by**

*Science & Humanities Department*

*Goa College of Engineering*

*&*

*ENGICO CONNECT*

*A First Year B.E. Student association of Goa College of Engineering*  
*Reg. No. 2/Goa/2023 under The Societies Registration Act, 1860*

# Editorial Board

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Editor-in-chief



**Ms. Minaz Bi Sheikh**  
Associate Editor



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VLSI



**SAISH DATTARAM CHODANKAR**  
Comp



**Divya Nagesh Prabhu**  
VLSI



**AYUSH ANAND JADHAV**  
Comp





Dear Readers,

The Editorial Board is pleased, to bring before our, beloved First Year Students, the maiden issue of the e-Newsletter titled 'ENGICO First Year Connect'. This newsletter will serve to reinforce and allow increased awareness, improved interaction and integration among all of us.

As we all know,

a newsletter mirrors life on the campus of its Students and Teachers. We have made a humble beginning by planting this seed for the First Year Students of our Institute and our vision is to see, that it is taken to greater heights by our students.

The Objective of this Newsletter, is to highlight events, activities, academic prowess, achievements, Creativity of Students and share latest trends in the field of Science and Technology, Social Sciences, Communication and Economics.

This newsletter should inspire us for new beginnings and encourage students to use it as a platform to express their creativity.

We sincerely hope that  
this edition makes an interesting read.

I would like to extend my sincere thanks  
to

Dr. R. B. Lohani, Principal and Dr. Sebastian Mesquita HOD,  
Science and Humanities Department, for their support in  
making this newsletter a reality.

My thanks to Ms. Minaz Bi Sheikh, Associate Editor and my  
Colleagues in the Department for supporting this idea.

I thank the Student Board members for their contribution.

Yours Sincerely  
Adlete Mascarenhas

## From the Principal's Desk



**New Year 2023 Greetings  
to all**

**ENGICO First Year Connect readers.**

**I am indeed pleased to know that the  
Department of Science and Humanities has initiated a  
Newsletter focusing on our First Year Students.**

**I am confident this Newsletter  
will provide the students with essential information  
and serve as a platform to showcase and express their  
talent in a holistic way.**

**Last semester our college got NBA Accreditation for all  
its Six Undergraduate programs. Under the NEP 2020,  
we move ahead with new challenges and possibilities.  
The Faculty, Staff, and Students are expected to have a  
multidisciplinary approach, for which this Newsletter  
will be a quality source to disseminate guidelines,  
framework, and set high standards.**

**I commend the Editorial Board for their dedication  
and excitement in putting their first issue together  
and wish them the best of luck in the years to come.**

**Stay informed and have fun reading.**

**Dr. Rajesh. B. Lohani.**

## From the Science & Humanities HOD's Desk



At the outset let me congratulate you for being successful in gaining admission to coveted Goa College of Engineering. You have now embarked on a journey to be an engineering professional. The four years you spend in college will play a big role in your success. In the first year, knowledge of science and mathematics facilitates comprehension of engineering knowledge.

Concepts from science are used to find relation between various physical quantities in the systems which then result in mathematical equations. Analyzing and deciphering these equations using mathematics then yields valuable knowledge which is put to use through applications. Thus a strong foundation in science and mathematics plays very important role in a successful engineering career.

Academic activities for a professional engineering and Higher Secondary differ considerably. Whereas Higher Secondary Academic activity focuses on exams- in order to gain admissions to professional courses- engineering academics is application oriented where hands on creation and implementation of procedures/process/algorithms/applications are made.

This requires a different approach, that of experimentation, analysis, scrutiny, inspection etc. which will prepare you to face challenges in your profession.

Academic activities have to be supplemented by cultural/sports/extra-curricular activities. These activities play a very important role in general wellbeing of an individual. Being happy, cheerful and in good health plays a crucial role in being successful professionally. Professionals in addition to technical skills require presentation, writing, debating skills and developing them is an absolute must. Co-curricular activities such as debate, essay writing, elocution, and quiz help one to develop these skills. During the Induction program the students have been apprised of the various

Students clubs in which you should actively participate.

The four years you spend in GEC should develop you holistically into a professional ready to go and contribute to this great nation.

Dr. Sebastian Mesquita



# First Year Students Awards and Achievements

JAN-MAR 2023



**Atharv Naik, First Place in Quiz Competition**



**Joseph Fernandes, Second Place in Quiz Competition**



**Ahmed Khan, Third Place in Essay Competition**



**Shivam Kapri participated in Essay Competition**

Events held for  
Vigilance Awareness Week  
at the College from  
31 st Oct to 4th Nov 2022



**Sohail Shaikh presented a Monologue**



**Vignesh Gaunkar participated in Quiz Competition**



**Sonia Shetkar participated in Essay, Quiz and Poster Competition**



**Janhavi Pawaskar participated in Essay Competition**



# First Year Students Awards and Achievements

JAN-MAR 2023



**MR. SOHAIL SHAIKH F.Y. MECH. ENGG.**

**WON 2ND PLACE AT THE ALL GOA INTERCOLLEGIATE ELOCUTION COMPETITION ORGANIZED BY GOA SHIPYARD**

**STATE GOA 10th & 11th Dec 2022**

ORGANISED BY

**TRADITIONAL KARATE ASSOCIATION OF GOA**



**CLEAVON PEREIRA  
WON**

**KUMITE U-21- FIRST PLACE  
TEAM KUMITE A-16 MEN'S-  
FIRST PLACE**

**KATA U-21- THIRD PLACE  
EVENT HELD ON**

**26TH & 27TH NOVEMBER  
2022**

**TKAG SOUTH GOA DISTRICT  
KARATE CHAMPIONSHIP  
2022**

**KUMITE U-21 - FIRST PLACE  
TEAM KUMITE A-16 MEN'S -  
SECOND PLACE  
EVENT HELD ON**

**10TH & 11TH DECEMBER 2022**

**AT THE**

**TKAG STATE KARATE  
CHAMPIONSHIP 2022  
EVENTS ORGANIZED BY  
TRADITIONAL KARATE  
ASSOCIATION OF GOA.**





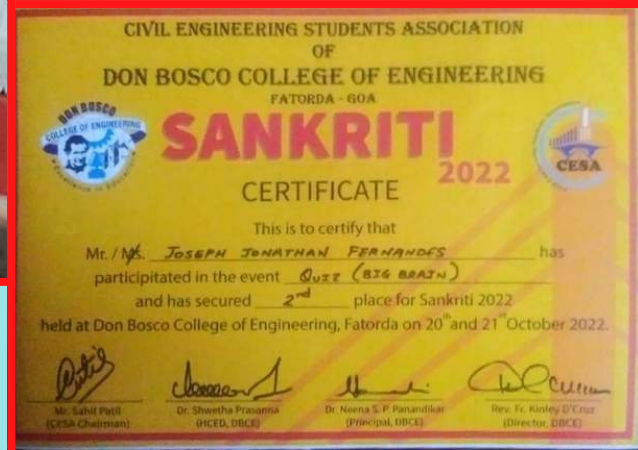
# First Year Students Awards and Achievements



**ALEX PEREIRA & JOSEPH FERNANDES**

**WON SECOND PLACE**

**FOR QUIZ (BIG BRAIN) IN THE EVENT  
SANKRITI ORGANIZED BY DON BOSCO  
COLLEGE OF ENGINEERING FATORDA**



**SUHANI P. CHODNEKAR**

**AND**

**ADITYA NAIK**

**WON 2ND PLACE AT THE  
DEBATE COMPETITION**

**ORGANIZED BY  
INTENSA (STUDENT  
COUNCIL IT DEPARTMENT)  
ALONG WITH DEBATE  
CLUB, GEC**



# First Year Students Awards and Achievements

JAN-MAR 2023



**SOHAM BHATKULY & HRISHIKESH  
HALDANKAR**

**WON FIRST PLACE**

**FOR BRAIN WAVES ORGANIZED BY IT DEPARTMENT  
GOA COLLEGE OF ENGINEERING**



**GEC Team won 3rd Place for the State Level One Act Play  
Competition held during the Youth Festival 2022 at Sanquelim**



**Name of the One act Play - Lakshmi  
View it on GEC drama club  
YouTube channel  
<https://youtu.be/F5od7gyrkIo>**

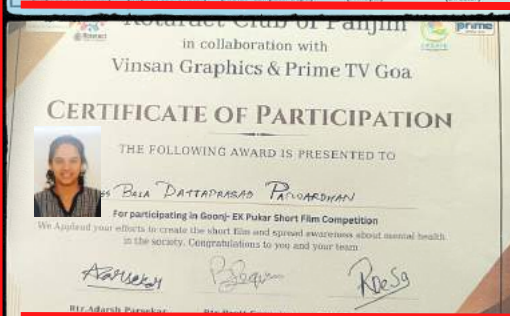
**First Year Student Participants  
Bala Patwardhan (played lakshmi)  
&  
Siddhant Gaude (played Vishnu)**





# First Year Students Participation

JAN-MAR 2023



"Don't let your fear of failing triumph over the joy of participating"



"I shall participate, I shall contribute, and in doing so, I will be the gainer"

Participation in street play competition through the GEC Drama Club.

Topic: Consumer Awareness.

First year participants in the street play are

- 1) Siddhant Gaude
- 2) Krutika Amonkar
- 3) Rahul
- 4) Soham Phalkar
- 5) Nilkantha
- 6) Veer chodankar
- 7) Prayag Tari
- 8) Bala Patwardhan



This street play is available on YouTube  
<https://youtu.be/izUloWtUJII>





# First Year Students Grooming to be Tomorrows leaders

## NATIONAL CADET CORPS



### Senior Wing (SW) Female

DIVYA SIROBHUSHANAM
ANJU FERNANDES
RIYA P.M
VAIDEHI GOURISH DABOLKAR
SHREYA SURENDRA DESSAI
MITHILA HARSHAD VELINGKAR

### Senior Division (SD) Male

NEHANSHU PAGI	SOMAY NAIK
UDIT ULHAS CHARI	DEVANSH KIRAN
GAJENDRA KERKAR	CLEAVON PEREIRA
ASHOK ALIAS SANDEEP	RHEETIK PARADKAR
OMKAR EKAWADE	SHIVAM KAPRI
SHIVAM SHIRODKAR	SOHAIL CHAMANSHAIKH
TEJAS BORKAR	SAIKET PARKAR
ANIKET SHYAM GAWADE	





by

Angad Prabhusawkar

F. E 1T



## CHAOS TO BE

You tried to convince me,  
 There's no balance in the light,  
 Control richotted by the four suffocating wax walls,  
 Chaos is falling in the volumes of blight.  
 You rummaged through the towns..for me,  
 promise of a meal,  
 My throat waited in ordeal.  
 I saw,  
 Peeped, until...the window became a door,  
 Wanting to storm out, jump in,  
 But who knew?  
 You jangled the keys in your pocket,  
 showed an accessory,  
 My trust in your clover locket.  
 Trapped inside,  
 everyone could see you laughing at me,  
 Making me feel...stale  
 Sagittarius shadow..and onerous,  
 projected in the beam outside.  
 Contd..

the air I breathed, was the ozone I didnt deserve,  
 Of course,  
 You make it so hard for yourself to smile  
 forge,  
 Submerge,  
 In the wiles..  
 ..of a selfish mate who looks for selfless love..to love  
 him.  
 he's never going to jump out of the irony is he?  
 so, gnaw your mind,  
 It cant even transfix you to fall in love with yourself.

## (Interlude)

In innocence,  
 Your heart breaks,  
 My heart is ready for you to raise the stakes,  
 In lachrymose,  
 Scream.  
 (I) try to transist your day in gleam.  
 In hope,  
 there's hurt,  
 there's woe,  
 we all gasp and say "you reap,what you sow".  
 when every move you win,  
 the glasses of champagne are two,  
 It's my beehove.  
 But....  
 Death and destiny both have arrived,  
 Heroics and heartbreak both collide,  
 The sand is swimming,gliding with the water of  
 ocean,  
 Your footprints wont be a sign of evidence..  
 Do something and save yourself,  
 Leave. Before. You. Get. Left.  
 Harness your sixth sense...  
 Can't you feel the hurricane??  
 stay mum and hide,  
 Nonetheless,  
 You are the chaos to be..



G. Akaash Samson

## GROW!

Grow, For you can be better  
For you can be more  
For you can fly  
For you can shine  
For you can look at the world  
From a point so high  
Only you can decide

The taller the shoots  
The deeper the roots  
The more you show  
The more you know  
Grow within by  
Growing out

Grow, For you can be better  
For there is hope  
For there is love  
For you are never alone  
But always on your own

You are the one  
Whom you have to defeat You are  
your Enemy Never Be yourself  
Because you can always Be the  
Better of yourself  
They might cut you down  
They might throw you away

They might shatter or break you to  
pieces They can do all they want  
But they can never stop your growth  
Because you can always grow  
Out of Pain  
Out of Care  
Out of Will  
Out of Who you are

So Grow!  
For you, Can be Better..

**"Don't go through life, grow through life."  
- Eric Butterworth**



## 'GHUSMAT' -MENTAL HEALTH AWARENESS A SHORT FILM

I am Bala from First Year GEC.

I participated in a short film competition organised by Rotary Club Panjim. Although we did not win any prize the experience of shooting and acting was great.

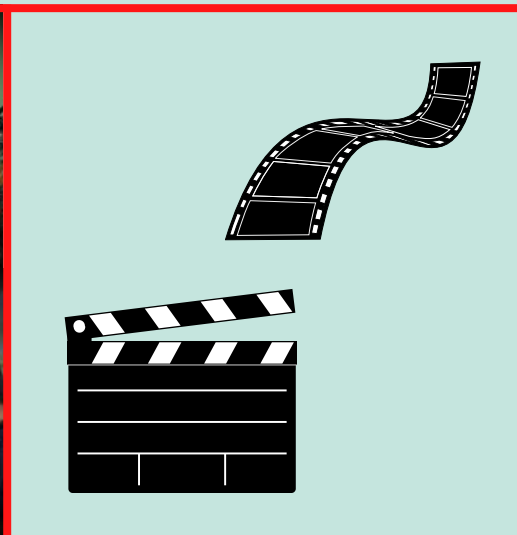
The name of our short film is "Ghusmat". This konkani short film sheds light on the importance of mental health and the problems a student faces while preparing for some of the entrance exams. Due to social pressure and sometimes expectations from the parents a student becomes overburdened with the stress and takes some immature decisions which harms the student as well it's family and friends .

Instead of chasing marks, a healthy competition and studying for the fun is what we should strive for.

Student suicide rates in India are increasing and that is why Awareness of mental health is the need of the hour .

Our team members are Pratham,Dhruv, Gaurang, Suyash, manasvi. This short film is available on YouTube for your viewing.

<https://youtu.be/KjvvkSN5V5Y>



# Being Aware of India's Diplomacy

- Tanish N Hede

FE IT

## Introduction

The World is highly dynamic. There are various new developments that take place over different parts of the World. Some of them are minor ones which only affect the domestic politics of that region but some major ones are capable of having a global effect. In this blog, we take a look at various aspects of India's foreign diplomacy, the G20 Presidency which we have recently taken over and also try to understand the need to be aware of geopolitical happenings and specifically India's diplomacy.

## Overview of India's Foreign Policy

As India has already completed 75 years of her independence this year, we have naturally come a long way since then, in dealing with other countries of the World. Back in 1947, when India began her journey as a newly born republic, our leaders pursued the World through a very idealistic lens. Broadly, over the years, the core of India's foreign policy has moved from idealism to strategic realism and further to economic pragmatism. Non-alignment, anti-colonialism, anti-racism and world peace were some of the key features of our foreign policy back then. While the globe was divided into a bipolar setup, India strongly followed a policy of non-alignment. India in those times could not afford to indulge herself in the game of big powers. How would a newly formed democracy punch above its weight? Our diplomacy has gone through its own highs and lows. Our idea of idealism suffered a setback in 1962 when the Sino-Indian war took place as a flare-up of a border dispute between the two countries. That was when India realized its mistake and we gradually shifted from idealism to realism. While Indian diplomacy played a crucial role at times like Goa Liberation (1961), Bangladesh Liberation (1971), Sikkim Integration and conduction of the nuclear tests, many argue that taking up the Kashmir issue at the UN, signing of Simla agreement and bilateral relation with China are some things that could have been handled in a better way.

## India's Foreign Policy: Recent Trends

In the recent years, India has seeing for itself a more aggressive foreign policy as a result of increased intensity of foreign engagement. In 2019, a seasoned diplomat Dr. S Jaishankar took over as the Foreign Minister, which was only the second time an ex-IFS officer had assumed that office. The World pursues India as a sober and responsible power due to its reliable democratic setup. In addition, the nation's emergence as a rising economy and a growing IT & Tech power has elevated its position as an important stakeholder. The country has also proved to be a net security provider. India has been the largest contributor to the UN peacekeeping force and the country has been a consistent provider of humanitarian assistance, aid and relief operations to countries in need. These acts cement India's image as a power committed towards global good. We have successfully been able to navigate differences. One recent example of it was seen when we chose to be neutral during the Ukraine crisis despite the international pressure. The US which was once seen as an opposing force to India's foreign aspirations is now considered as one of our partners. We have transformed from a non-aligned State to a multi-aligned State which is very necessary in the multilateral world. Some of the recent achievements of the Indian Foreign Service were seen during the evacuation after the Taliban took over Afghanistan, during the Covid pandemic when India launched the Vande Bharat Mission to bring back its people stuck overseas, delivering vaccines to countries in need.

Contd...



# Being Aware of India's Diplomacy

## What's the G20?: A Brief Idea

The G20 is an intergovernmental forum comprising of 19 countries and the European Union. It was formed in 1999 as a platform to unite the finance ministers of various nations and its main agenda was to deal with issues related to global economy. However, it has reinvented itself by widening its issues to those like climate change and sustainable development, fighting corruption, digitization of economy, health, education, food security and nutrition, tourism, etc. Its members collectively comprise of 85% of the global GDP, 75% of international trade and 2/3rd of the world population. Each of its members gets a chance to take over as the President of the forum on a yearly rotational basis. It is a forum which consists of developed as well as developing nations. Its President for the upcoming year 2023 is India. All throughout the year, the countries meet up for numerous meetings with different specific agendas. Generally, the Heads of States only meet during the Leaders' Summit. The Head of Government of every country appoints a 'Sherpa', basically a representative on their behalf to attend the meetings that will be held throughout the year. India's Sherpa for the summit is ex-CEO of Niti Aayog, Shri. Amitabh Kant. India plans to host at least one G20 meeting in its every state while the leaders' summit will be hosted in New Delhi. It is utilizing the forum as an opportunity to showcase its rich and diverse culture and also to show the achievements that it has made so far. India's slogan for the summit is 'Vasudhaiva Kutumbakam: One Earth, One Family, One Future'.

## Conclusion:

### Growing an Interest and Staying Updated about Diplomacy

The Indian Foreign Service is one of the elite civil services in the country and recruits diplomats which serve in Indian missions abroad. They work for the Ministry of External Affairs dealing which deals with the country's foreign relations and offer consular services to citizens overseas. But it is highly likely that one may have not heard of this service as much as one does about the IAS or the IPS. Predominantly, only because of the reason that they don't work in every nook and corner of the country and they are very seldom talked about in the media. However, we should not forget that they do work away from their motherland but in its best interest. We, as citizens are often ignorant of geopolitics and our own nation's foreign policy. But, it is high time we realize that diplomacy does have an impact on the citizens. From students to workers, people from all walks of life can be impacted upon by a country's diplomacy. From security to economic interests to technology, diplomacy has its role everywhere. A lively example of highlighting the role of diplomacy was seen when UK refused to recognize Indian travelers vaccinated with Covishield (which was a licensed production of their own AstraZeneca) and our diplomats reasoned and negotiated to finally compel the British government to allow their entry. It is no more something that shapes up at the South Block and ends up at the UN. In the globalised world that we live in, it is necessary to understand that the foreign policy should no longer be 'foreign' to us, as citizens. It has reached our homes.



## "कोरोना एक वेदना एक संवेदना"

कोरोना एक वेदना एक संवेदना  
 एका लहान विषाणू कोरोनाने दाखवले आम्हा खूप रंग  
 आठवते मला ते क्षण त्या वर्षीच्या मार्च महिन्याचे  
 आम्ही होतो घरीच पण विचार करा त्यांच्या  
 जे दमले होते चालून चालून घरापासून लांब राहून  
 कोरड्या घश्यान अन् न खाता  
 पण जेव्हा घरी परतले  
 विसरून गेले सारे दुःख आणि वनवन  
 थांबलो आम्ही घरात, ठेवला विश्वास मनात  
 केला विषाणूवर मात, एकजुटीने  
 बंद झाले खेडे गाव अन् बंद झाली शहरे  
 एका कोरोनाला लागून जग आले शरण  
 हात स्वच्छच धुवावे अन्न शिजवूनी खावे  
 लोक समूहात जाणे टाळावे येणे जाणे  
 लग्न कार्य जरी असले तरी  
 फक्त पन्नास लोकांनीच जाणे  
 सण वाढदिवस केले साजरे, थांबलो आम्ही घरीच  
 पण यातून शिकलो आम्ही काय  
 कुठे येणे जाणे बंद, तेव्हा जोपासावे छंद  
 घेतला नितळ जीवनाचा आनंद  
 आनी केला अंतरीचा प्रवास  
 अजून मला कळले नाही कोरोनावर नेमका उपाय  
 कुणीतरी सांगा मला या कोरोनाचे करायचे काय?

-सोनिया प्रमोद शेटकर



I, Sonia Pramod Shetkar, student from FE ETC, participated and presented this Marathi poem titled "कोरोना एक वेदना एक संवेदना" at कोकण मराठी परिषद गोवा, 18 वे शेकोटी साहित्य संमेलनातील चाफा कवि संमेलनात on Sunday 18th December 2022 at Mapusa, Goa.

## WOMEN ACHIEVERS OF OUR TIMES

-- Janhavi Pawaskar  
FE ETC

### Inspirational Story of Sudha Murty

Simplicity is the best jewellery she wears. She is simple yet dynamic, a revolutionary yet obedient, bold yet humble, she is intelligent, strong and confident. A strong inspiration for young minds Mrs. Sudha Murty.

Sudha Murty is an Indian educator, author and philanthropist who is chairperson of the Infosys Foundation.

Sudha Murty was awarded the Padma Shri, the fourth highest civilian award in India, for her social work in 2006.

She is graduate in Electrical and Electronics Engineering from the B.V.B.College of Engineering and Technology (presently known as KLE Technological University). She completed her post-graduation in Computer Science from the Indian Institute of Science.

Sudha Murty became the first female engineering hired at India's largest auto manufacturer TATA Engineering and Locomotive Company (TELCO). This was at a time when TELCO followed the 'Men only Policy'. She wrote to J.R.D.TATA (Chairman of TATA group) complaining about this policy, which was later revoked.

In 1996, she started Infosys Foundation and to date has been the Trustee and Chairperson of Infosys Foundation till 2021. The foundation has a focus on education, healthcare, rural development, destitute care, art & culture, mid-day meal schemes and water projects

Sudha Murty has written and published many books which include novels, non-fiction, travelogues, technical books and memoirs. Her books have been translated into all major Indian languages. She is also a columnist for English and Kannada newspapers.

Sudha Murty has helped to open up 60,000 libraries, new schools and over 16,000 washrooms in India. She has also founded several orphanages, practiced in rural areas and supported the movement to provide all Karnataka government schools with computer and library. She even founded 'The Murty Classical Library of India' at Harvard University.

Sudha Murty has been an inspiration for many. She once said, "No kingdom, neither a beauty nor money in this life nothing stays with you. The most beautiful person today will become old one day, people who were very rich once upon a time may not remain like that because money is always wavery. So in life nothing is permanent? What is permanent is knowledge. Knowledge nobody can steal, nobody can burn, nobody can bury".

**"If Your Dreams Do Not Scare You, They Are Not Big Enough"**

-Ellen Johnson Sirleaf  
Nobel Peace Prize Winner 2011





**PHOTO REALISTIC SKETCH**



**REALISM ART STYLE**



**Shreya C Khokaralkar**

**“If I could say it in words there would be no reason to paint.”**

**— Edward Hopper**

Edward Hopper is one of the artists who saw art as a type of dialogue . Although art is oftentimes a visual medium, it is capable of communicating as effectively as words.





*Hello, I am Akanksha Kodachwadkar from FE IT .  
I like painting, drawing, and things related to art.*

*Art being my favourite hobby is also my  
inspiration. The final artwork on completing gives  
me a sense of accomplishment and reward. Art is  
the path where we can explore and express our  
creativity. I like doing various types of art like  
canvas painting, watercolour painting, mandala  
art, many traditional art like Varli, Madhubani,  
Rajasthani, etc*



*These are some of my  
artworks:*

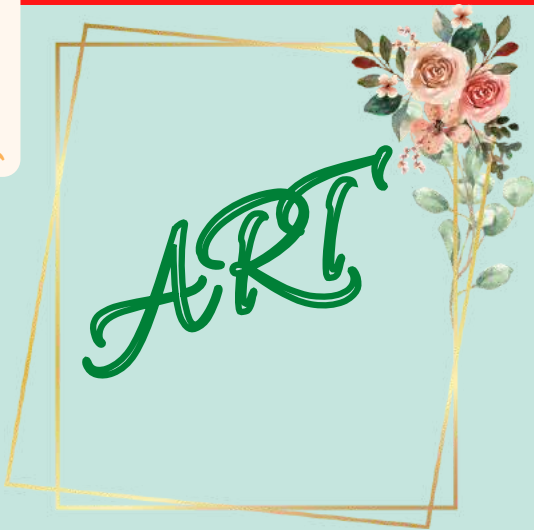
*This landscape canvas  
painting portrays the  
scene of dawn of snowy  
mountains.*



*Landscape canvas  
painting depicting a  
scenery of sunset*







by  
*Akanksha Kodachwadkar*



*Traditional canvas painting  
depicting folk culture of Rajasthan*



*Mandala art*



*Watercolour painting of a Giraffe*

Interview  
conducted by  
Students of First  
Year B.E  
Goa College of  
Engineering



Suhani Prabhu Chodnekar  
ETC



Bala Patwardhan  
IT

It is no secret that a high capacity to delay gratification—to place discipline and self-sacrifice in the service of a dream that shimmers in the distance like a mirage—is among the distinguishing characteristics of great achievers. Does this feel familiar to you? Or are you someone working, trying, failing in the hope that you can be this person some day? If your answer was yes, this article is for you. In this student-teacher interview conducted by us, we will delve into a brilliant thought provoking dialogue with Mr. Chetan Desai, Assistant Professor in the ETC Department and co-founder of a healthcare start-up 'Cyanodoc'.

### Profile of the Faculty

**Mr. Chetan Desai, Assistant Professor in the ETC Department**

**Qualification-** M.E. in Microelectronics from Goa College of Engineering affiliated to Goa University.

**Scholarship:** Faculty Research Fellow at IIT Delhi.

**Skills Acquired:** Dale Carnegie Certification for High Impact Teaching

**Technical Interests:** Microwave Devices, Microstrip Antennas & EMI-EMC

**Achievements:** Co-founder of healthcare startup- Cyanodoc

### Question 1

- Sir, since when have you been a faculty in GEC?

I joined as a faculty member in 2004, but my association with GEC goes back to 1998 when I entered as an undergraduate student!

### Question 2

- In these 18 years and with your vast experience, you must have seen, interacted with and encountered various kinds of students. There must have been a recurring pattern that you noticed among GEC students. And considering you have also interacted with students of other colleges, especially NITs and IITs, if I were to ask you to point out key differences, how would you say GEC students are different from them?

Interesting question to answer, considering that, I have been an alumnus. During my research fellowship at IIT Delhi, along with my interactions at IIT Bombay, I had ample occasions to interact with their students. I would say that all students are essentially the same, no matter which institute they belong! Difference of a few marks in a particular entrance test on a particular day does not change the quality of a person. I believe intelligence is not determined at birth; rather it depends upon how deeply a person immerses himself or herself into the learning process. From this perspective, I would consider GEC students to be at par with any other national institute of repute. The differences if any arise due to the exposure that the students receive in their day-to-day learning in their institute.

In an NIT or IIT system, the students are usually resident scholars (i.e. they do not need to travel out of the campus). In GEC, most students are day scholars. I believe this robs them of the exposure that they could have received otherwise. Another difference is the kind of interactions that students have in their institute. Brand GEC does not attract the same kind of personalities on campus, as an IIT Bombay is able to. So networking on campus is a challenge. This does hamper their growth opportunities to an extent. However, COVID may be a blessing in disguise. Online interactions have levelled the playing field to a certain degree. Learning that happens beyond the classroom is as important as inside the classroom. Focus on a task becomes easy if you are not distracted. My students who managed to remain focused on their goals have outcompeted their peers from top national institutes.



## Question 3

- And that brings me to my next question, what can a student do to go towards being someone like that? How would you characterise this set of students with those precious few qualities and what are those qualities specifically?

Motivation definitely is the key. If you can motivate yourself, then you have won half the battle already. The other half requires sustained efforts to achieve your goals. If you are not self-motivated, then you need to interact with people who have achieved something that catches your imagination. This differs from individual to individual. We have had students who have excelled in both technical and management fields. Our best students have got into the top IITs and IIMs for their postgraduate studies. Most of them developed interest after seeing their seniors succeed.

Moreover, I am not talking only about the top scorers in exams. I have seen students with the lowest of scores, who have reached a level far above what their marks may have suggested. I distinctly remember a student who, before his sixth semester, was averaging 55% marks. He approached me one day and we interacted for an hour or two. I felt there was a spark inside him and tried to help him get a better perspective about his goals. That interaction seemed to have spurred him and the next semester onwards, his percentage zoomed to 70. By the eighth semester, it came to around 80 and overall he stood among the top 3 in the department. Subsequently he completed his management studies and today works for McKinsey & Company (one of the most selective employers in the world). Most graduate students in the world would consider them as their dream jobs.

There is another student I can vividly recollect, who also scored less than 60 % until his sixth semester. He used to come to my lab and watch a postgraduate student, carrying out a research project in the domain of microwave engineering. Usually, undergraduate students avoid microwave projects, as they tend to be difficult to comprehend. He confided with me that he found it to be intriguing and he was determined to do the project. That boy, after completing his bachelors in ETC, went on to complete his masters in the second ranked institute in the United States in the domain of Electromagnetic Interference / Electromagnetic Compatibility (EMI-EMC). Today, he is working in signal integrity at Micron, which is one of the topmost companies in the world for fabrication of semiconductor components. So you see, a student who was scoring less than 60% marks is doing amazing work in core electronics, which most brilliant engineering minds would crave for.

## Question 4.

- That is truly a very inspiring story. My next question is what do you think are some of the major distractions for students of our generation?

((Laughs) I may not be the best person to answer this rather you would know the best answer. From my perspective, I would say it depends on an individual. No doubt, there is social media and technology in general which takes your focus away. I am not going to preach here by saying you need to cut off everything. It is difficult but will be your superpower if you can tame it. Start by moderation and be persistent!

## Question 5.

- Apart from academics and extracurriculars like sports, cultural activities, what would you say are some skills that students should be focussing on, especially first years because it is a good time for them to start?

We are living in fast changing world, so the skills required to succeed in life will keep evolving. Acknowledge this fact and embrace lifelong learning. Today, even if you are a non-Computer Science student then please learn programming as it is a tool that you will use throughout your life (assuming ChatGPT /GPT-4 can't help!). Next, if possible do a proper aptitude assessment, so that you can improve wherever you are lacking. These are bare necessary skills. Besides these, you need to have another set of skills, which are the soft skills. Find inspiration, put yourself out there in front of people, practice, build confidence, and perfect your language. Improve your communication skills. Focus on how you speak with people; how you present yourself, how you work with others in a team. Hone your presentation skills until you have the ability to convey your point effectively.

## Question 6.

- Sir, what are the ideal characteristics of a good learner?

To be an effective learner you need to know the exact purpose of your learning. Why would you want to learn? You may be having a problem to solve or you may be looking to find a problem. Either ways, a good learner is always a good listener. The understanding you get from listening is immensely important. Having listened intently, you may also like to question to get more clarity. Embrace questioning as a tool to improve your learning. The more your question the better will be your understanding of the problem at hand. As an engineer, you will usually need to identify problems and solve them. Relate what you have learnt with the problem. Come up with your solutions and see if they are good to use. To reach an optimum solution you may need to put in a lot of time for trial and error. You are bound to encounter failure but do not give up! Consistency and resilience should be second nature of a good learner. To sum up - Know your problem thoroughly – listen – question - try to understand better - Come up with solutions and test them - get feedback and then run all of it in a continuous loop.

## Question 7.

- For conclusion, what is one thing you would want to tell the first year students that might be a hard pill to swallow but it is necessary that they listen to this?

Great question ..... I have been concerned for too long about it. I hope this forum will help me reach the targeted audience of first year students early so that you can take effective action. I recollect having this particular talk with the 2013 pass out batch. They were the last batch of students before NIT Goa started. All students who went out from GEC until that point were coming from the top of the state. Most of them had the luxury of the best opportunities available in Goa served on a platter. However, that is not available for you. You have tremendous competition and you are no longer considered the best in Goa anymore. Face it! There is no running away from this. There are better institutes in Goa today. NIT Goa is your biggest competitor. IIT Goa and BITS Goa may not necessarily be your competition directly, but indirectly they will take away your cheese if you are complacent. Just because your seniors got fantastic opportunities, it does not guarantee you will have the same. Having painted such a gloomy picture I still believe that my students can be at par with the top national institutes. All you need is sustained efforts every day to improve yourself because ultimately your true competition should be with yourself

And with this we concluded our interview. We are grateful to have had a chance to interact with such a knowledgeable and humble personality. There is a lot to take from this conversation. Thank you for reading!





# ROLL OF HONOUR

## First Year B.E. 2021-22

Name	Branch	CGPA
NIDHI MADAN SHANBHAG	COMP	9.94
SIMRAN YOGESH NADKARNI	COMP	9.79
KOMAL CHANDRANATH AMBE	COMP	9.77
VALOIS IAN FERNANDES	E & E	9.59
SHLOK SHRIDHARRAO ZAMBREKER	COMP	9.59
ADITYA GOPAL NAIK	E & E	9.56
ARYAN JHA	ETC	9.56
ISHIKA VIVEK NAIK	ETC	9.56
ATHARV RAVINDRA AYIR	COMP	9.56
AARON THERESA MASCARENHAS	E & E	9.50
DEEPTAJ PREMANAND DHAUSKAR	COMP	9.50
GEORGIA THERESA EDWARD VAZ	IT	9.44
SHREYA SHIVRAM HOSMANE	E & E	9.44
MAHENDRA ANIT SINAI PRIOLKAR	COMP	9.41
SIYA VIJAY DESAI	COMP	9.41
RAJKUMAR MADANKUMAR GUPTA	ETC	9.38
SNEHA SADANAND KUDCHADKAR	COMP	9.38
DRUV TRIVIKRAM PRABHUGAONKAR	ETC	9.36
VINCENT D'SOUZA	COMP	9.35
SACHI VINAY KAMAT	COMP	9.33
JOSHUA NOAH D'LIMA	COMP	9.32
SUYASH GURUNATH SHIRODKAR	COMP	9.32
YUKTHI KEDAR MANERKAR	IT	9.32

**Congratulations!**  
**We're so very proud of you!**

# Dr. Chetankumar Jaliha

Electronics and

Telecommunications Engineering (2009-2013).

## Qualifications

- Humboldt fellow, Max Planck Institute for Meteorology, Hamburg 2023 - Present
- Postdoctoral Scientist, Max Planck Institute for Meteorology, Hamburg Dec 2020 - Dec 2022
- Ph.D., Indian Institute of Science, Bangalore, 2015 - 2020
- M.Tech, Indian Institute of Science, Bangalore, 2013 - 2015
- B.E., Goa Engineering College, 2009 - 2013

## Achievements

- Awarded the Humboldt Postdoctoral Research fellowship for carrying out research at the Max Planck Institute for Meteorology, Hamburg
- Recipient of the Roddam Family Medal for best Ph.D. thesis from the Indian Institute of Science.
- Jaliha et al. (2019), Nat. Comm., featured in the top 50 most read articles of Nature Communications, for the year 2019 ([link](#)).
- Awarded the Jeremy Grantham Fellowship twice, by the Divecha Centre for Climate Change, Indian Institute of Science, for outstanding performance in Ph.D. and M.Tech coursework



## Hi ENGICOS!

I come from a generation for whom engineering is the gateway to all career options. During my B.E., I realized that my interests are more towards climate and weather sciences. I got an opportunity to pursue a master's in climate sciences at the Indian Institute of Science (IISc), Bangalore. I followed this up with a Ph.D. at IISc. Currently, I am a Humboldt postdoc fellow at the Max Planck Institute for Meteorology, Hamburg.

I chose electronics and telecommunication (ETC) for my bachelor's because, in my understanding at the time, it had lucrative research opportunities. Besides, it offered a safety net in the form of myriad technical jobs. Until higher secondary, our focus is on learning from textbooks. But once we begin a vocational course, the practical aspects become equally important. I had a huge "hangover" from my education until engineering. I was institutionalized to study and work in a certain way that emphasized only learning from textbooks. It took me my entire engineering to come out of this.

Engineering is only as much useful as the extent to which we understand the practical aspects of the concepts. In the later part of my engineering, I always made it a point to connect the concepts we learned to real-life applications – specifically, how I could use them to make an iPhone. This deepened my understanding of the concept and I found it easier to remember them. I believe this approach also helped me get a decent score in GATE, which I answered in my 8th semester without any coaching.

Another new element that I came across in engineering were cultural events. Cultural events add a flavor to the semesters and take away the monotony of going to lectures and labs. Initially, I did not give the cultural events much importance. Besides, I assumed they had little to no contribution to my career path as a researcher. Now, after ten years of research, I cannot emphasize enough how wrong I was. They provide a platform for students to develop various soft skills – managerial, networking, communications, etc. Also, this is a medium for us to interact with industrialists and other eminent personalities.



The university curriculum can only go as far, and the onus is on the students to snatch every opportunity to develop such exposure. These soft skills play a crucial role in our professional success. I grabbed onto every chance I got at IISc. I have played various key organizational roles in several outreach events at IISc. Of course, there should be a good balance between academics and cultural events.

I had barely got the hang of engineering when I moved to IISc for my master's. The challenge here was two fold, i) a field very different from my bachelor's and ii) a heavily research-oriented curriculum. Though fluid mechanics and thermodynamics form the basis of climate science, the field employs extensive computations, signal data processing and relies heavily on coding. Luckily, I had learned these during my B.E., and the transition to the new field was smoother than I had anticipated.

Over the years, my research aptitude got polished. I found research to be a very fulfilling and satisfying experience. In particular, those moments when you discover something new that even google doesn't know is a really ecstatic feeling. My research is mainly concerned with describing Indian monsoon rainfall and its year-to-year variations in the form of a simple equation. Using such an equation, we could throw light on how it evolved from the ice age 20,000 yrs ago till the present. We can also understand how and why it will change in the near future due to global warming.

My background in ETC has given me a unique perspective on interpreting these results. For example, one of my favorites is the analogy between the Indian monsoon system and a control system. If you think of the Indian monsoon system as a control system, then the Sun's energy is the input signal, and the monsoon rainfall is the output signal. Given such a system, the various feedbacks can be isolated and quantified. This is what we did in our study, which was published in 2019 in Nature communications. Such analogies have the potential to unravel new interpretations.

Climate science is a truly interdisciplinary field. With the climate crisis looming around, an in-depth grasp of the changes in climate is crucial. In research, as also in life, many things do not work out the way you intend. One must develop the ability to use this failure in the next endeavor.

If there is any advice I would give my 20 yr old self, then it would be to aim for all-round development rather than focus only on academics. The old saying "Jack of all trades and master of none" needs to be modified in the modern context. A more apt version would be: "Jack of all trades and master of ONE." Also, I recommend approaching life with an open mind. We never know what is in store for us.

*The field we took up at the beginning of engineering, because it is in demand, might not be so by the time we graduate. It is essential to be agile and adapt to the ever-changing world.*



Chetankumar with Prof. Klaus Hasselmann, Founding Director of Max Planck Institute for Meteorology and recipient of Nobel Prize in Physics 2021



Chetankumar Jalihal, Ph.D  
Max Planck Institute for Meteorology,  
Hamburg 20146  
Germany



# From the Alumni Desk Sainath S Uskaikar

Electronics and  
Telecommunications Engineering (2015-2019).

## Hi ENGICOS!

I remember my first day in college. A group of friends boarded the famous Blue stripped Kadamba bus from the Panaji bus stand, and we traveled with a bunch of seniors. We had light blue shirts for the uniform in the first year. This was in 2015. I was part of FE -1 with a mix of diverse students.

I failed in Engineering graphics in the first semester. I had never failed an exam till that date, but I remember that day when the results were announced on the website. It shook me. But I had two options, to cry about it or fix it, I chose the latter. I cleared it in the next semester. Since then every failure looks like an engineering graphics semester paper that I can overcome. The most precious thing that GEC and especially the first year taught me was to handle failure. In the curriculum, the subjects like Communication skills and Social sciences taught by Prof. Sayeesh Habbu in the first year were a major factor in my inclination towards arts and humanities. Hence the first year played a very important role in my journey. I am from the Electronics and Telecommunications Department (2015-2019).



Red Carpet at Festival de Cannes 2022  
France



Tandav X



GEC drama club members with Principal Dr. M. S.  
Krupashankara



Parliament Competition



River Rafting enthusiast



## From the Alumni Desk

# Sainath S Uskaikar

Electronics and Telecommunications Department (2015-2019).

I have no qualms to accept that I struggled in the department but was fortunate for the guidance and support of my friends and faculty members. All of them supported my passion for art. During college, I started making short videos for competitions and inter-college events. They were made on almost no budget and with a lot of help from friends. Thus the dream of joining the Film and Television Institute of India (FTII) started seeding. I am currently studying in FTII with a specialization in Direction.

I am a filmmaker and a lifelong film student. My debut short film 'WAGRO' has been recognized globally.

It was part of the Cannes Court Métrage - Short film corner at Festival de Cannes 2022, France.

At the 53rd International Film Festival of India (IFFI), it was selected in the prestigious Indian Panorama section. It was the only film from the state of Goa.

In London, for the 30th Raindance Film Festival, WAGRO was an official selection, this was the UK premiere of the film.

Raindance Film Festival is an Oscar-qualifying film festival.



'WAGRO' has been screened and selected in more than 12 international film festivals.

I have collaborated with PRASAR BHARATI (India's public broadcasting service) directing a documentary titled "Siolim Jagor" (Traditional community theatre in Goa). My recent short film is titled "POSKO" (THE ADOPTED). It is a production of the Film and Television Institute of India (FTII, Pune).

I was an average engineering student with a dream to pursue filmmaking. When you join college, step inside with a dream. A dream that is impossible to achieve and massively bigger in scale. Be very very passionate about it and work on it, every day. You may fail but you will be proud that you tried. You may succeed and you will be proud that you had the guts to fail. I love this line from a Marathi novel titled 'Khandalya-chya Ghata-sathi', a fictional account of India's first railway line in the Sahyadri range.

"You build a section at a time, you build a tunnel at a time, you move to the next section and the next tunnel and you build BIT BY BIT"



Red Carpet at IFFI

**Thank you & see you at the movies!**





# GOA COLLEGE OF ENGINEERING



## VIGILANCE AWARENESS WEEK – 2022 (31st October to 4th November 2022)

“Corruption free India for a developed Nation”  
“भ्रष्टाचार मुक्त भारत - विकसित भारत”



Vigilance Awareness Rally  
31st October 2022 and  
integrity pledge  
for students and staff



Quiz  
on  
Vigilance  
Practices in India  
1st November  
2022





# SCIENCE AND HUMANITIES DEPARTMENT ACTIVITIES



**Essay Writing  
Competition  
2nd November  
2022**



**Poster  
Competition  
3rd November  
2022**



**Chief Guest  
Ms. Swapna Bandodkar  
Dy. Dir. (Admin)  
Animal Husbandary, Govt.  
Of Goa**



**Valedictory Function  
4th November 2022**





# SCIENCE AND HUMANITIES DEPARTMENT ACTIVITIES



**Valedictory  
Function  
4th  
November  
2022**



## UNITY DAY at the Institute





# SCIENCE AND HUMANITIES DEPARTMENT ACTIVITIES



**Shri Pandurang Nadkarni, Chief Guest**  
Lighting the Lamp



**Ms. Suhani Prabhu, Compere**



**Audience**



**Shri Pandurang Nadkarni, Chief Guest**  
Floral welcome by Tanvi Dharangutti



**Shri. Ganesh Manerkar, Coordinator NSS**  
Floral welcome by Pradnya Khedekar



**Dr. Adlete Mascarenhas, Coordinator**  
Floral welcome by Shreya Sakhalkar

**Constitution day  
Celebration  
at the Institute**



**Dr. Adlete Mascarenhas, Coordinator**  
welcomed the gathering



**Shri Pandurang Nadkarni, Chief Guest**  
delivering Key Note talk



**Ms. Bala Patwardhan**  
Reading of Preamble



**Mr. Sohail Shaikh - Speech**



**Dr. Aisha Fernandes**  
Introduced the Chief Guest



**Mr. Kartik Dev - Vote of Thanks**



**Token of Gratitude to Chief Guest**



# SCIENCE AND HUMANITIES DEPARTMENT ACTIVITIES

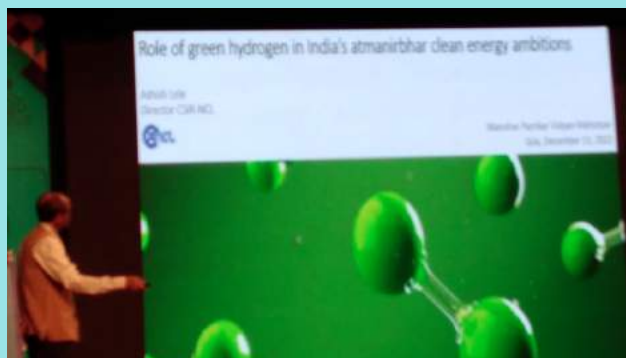
## Manohar Parrikar Vidnyan Mahotsav 13th December 2022

**First Year Students Participated in the Event at Rajiv Gandhi Kala Mandir Ponda**



**Key Note speaker**

**Dr. Christopher Brett, Professor of Chemistry  
University of Coimbra**



**Dr. Ashish Lele, Director of NCL Pune**



**Dr. B. S. Janagoudar  
Former Vice Chancellor  
University of Agricultural Sciences, Dharwad**

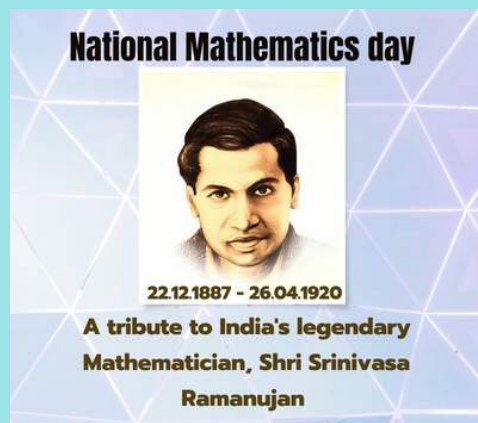




# NATIONAL MATHEMATICS DAY CELEBRATION

## 22nd December 2022

Department of Science & Humanities organised a talk on the occasion of National Mathematics day. Dr. Ravi Prasad K. J., Associate Professor in Mathematics, NIT, Goa and Dr. L. Shangerganesh, Assistant Professor in Mathematics, NIT, Goa were invited to deliver talks on the life journey of Shri Srinivasa Ramanujan and his contributions in Mathematics .



22nd December is observed as National Mathematics Day to commemorate the birth anniversary of Shri Srinivasa Ramanujan, a renowned Indian mathematician. Mathematics Day is marked to celebrate his works and recognize him as a legend in Mathematics. He is regarded as one of the world's greatest Mathematicians on a national and global level. In 2012, the former prime minister, Dr. Manmohan Singh marked this day as the National Mathematics Day to honor the legendary Srinivasa Ramanujan.

*"An equation means nothing to me unless it expresses a thought of God".*

*- Srinivasa Ramanujan*



Mr. Saish Chodankar, Compere



Floral welcome of the speakers by students



Dr. Raviprasad L. delivering talk



Dr. Shangerganesh delivering talk



Dr. Sebastian Mesquita, H.O.D., handing over token of appreciation to both speakers



Dr. Sebastian Mesquita, HOD, proposing vote of thanks



# SCIENCE AND HUMANITIES DEPARTMENT ACTIVITIES

## "JAN JAGRUTI SEVA"

(Societal Outreach programme of department under the aegis of Azadi ka Amrut Mahotsav)



Basic Literacy skills to group D employees



Financial literacy for group D employees



Basic Communication skills to group D employees



Basic Computer skills to group D employees



Banking procedure awareness to group D employees



Demonstration of ATM machine usage to group D employees

## Talk by Faculty



**Dr. Manoj Choukuse**  
Professor in Physics

**IETE 69th Foundation Day 2022**

**Topic "Essentials of Career Prospects for Engineering Graduates-Placement process at GCE"**

**Orientation program for FE students  
(ETC & VLSI)**

**Title- Engineering Graduates- Placement  
("Essentials of Placement Activities at GCE"  
for FE students of 2022-23 Batch)**



**Swachh Bharat Abhiyan on 2nd October 2022 in the  
Science & Humanities Department**



# SCIENCE AND TECHNOLOGY NEWS

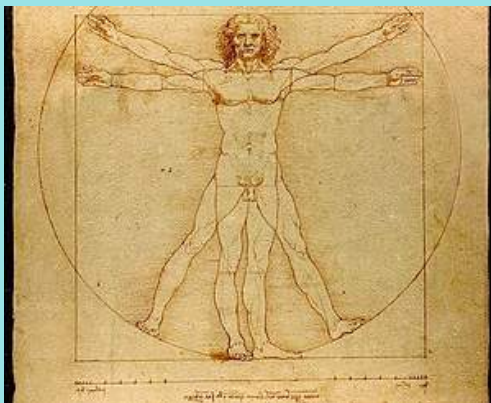
## THE FUSION OF MATHEMATICS & ART

*"The merit of painting lies in the exactness of reproduction. Painting is a science and all sciences are based on mathematics. No human enquiry can be a science unless it pursues its path through mathematical exposition and demonstration."*

*- Leonardo da Vinci*

Mathematics can create beautiful patterns and provide us with a deep understanding of symmetry, one of the underlying principles of great art. One of the strongest connections between art and math is the way that humans throughout history have used mathematical reasoning to construct lasting masterpieces. Many of the core skills in art and math are closely related. Both disciplines require spatial reasoning skills and the ability to recognize patterns. Many artists have taken advantage of geometrical shapes, abstract figures, fractal dimensions, golden ratio and other mathematical ideas to compose their magnificent artworks. Among such artists were Luca Pacioli (c. 1145-1514), Leonardo da Vinci (1452-1519), Albrecht Dürer (1471-1528), and M.C. Escher (1898-1972).

### Top expressions of Math



Vitruvian Man  
by Leonardo da Vinci



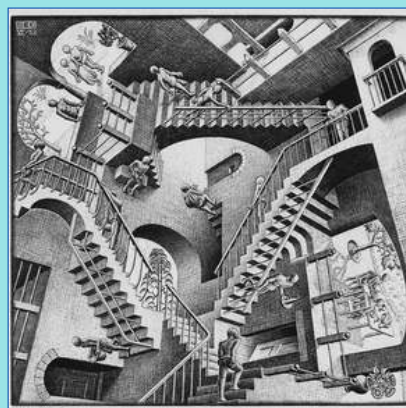
Drip painting method  
by Jackson Pollock



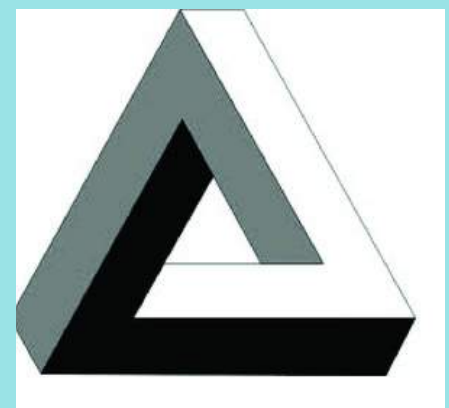
Geometry in art  
by Salvador Dali



Bridget Riley's stripe paintings.



M. C. Escher's surreal artistic spaces.



The Penrose Triangle

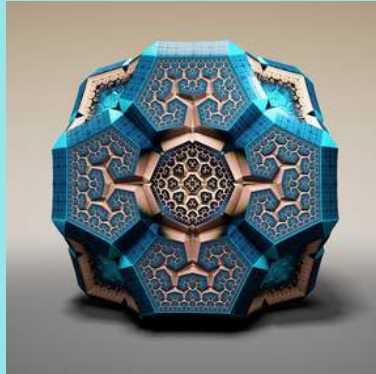


# SCIENCE AND TECHNOLOGY NEWS

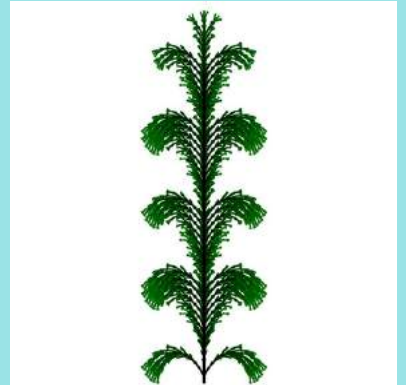
Recent adventures in Maths and art using fractals and geometric concepts .



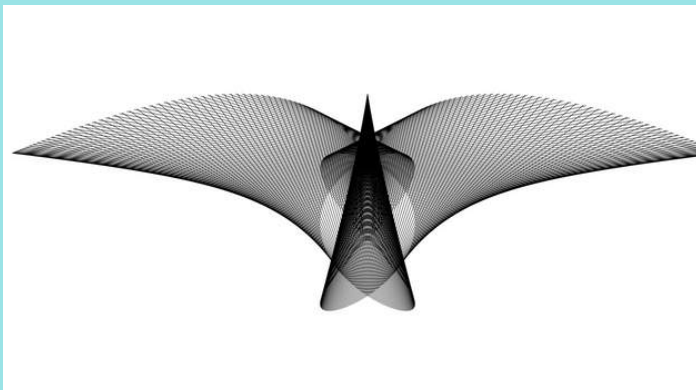
Simon Beck's snow art



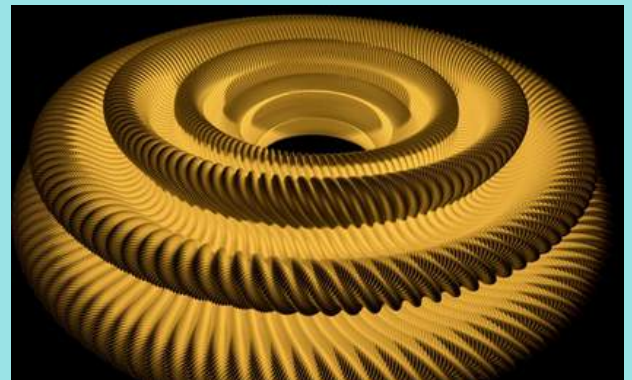
Tom Beddard's Fabergé Fractals



Liz Blakenship and Daniel Ashlock's taxonomy of fractals



Hamid Naderi Yeganeh's computer illustrations



The Hevea Project's models of isometric embedding

Students, here is a fun activity for you. You can start creating your own pictures and animations using Mathematical equations and inequalities in Desmos, a free online graphing calculator. Find below few video links on creating basic shapes using Desmos.

- <https://www.youtube.com/watch?app=desktop&v=aS9Mq8oestM&vl=en>
- <https://www.youtube.com/watch?v=GwTVV4crgeY>

You can also participate in the annual global Math art contest by Desmos. For details, click the link <https://blog.desmos.com/articles/art-contest-launch-2022/>

Don't forget to post us your original Mathematical art work. The best three will be showcased in the next issue of our newsletter.

So students, get started and take your creative imagination to new heights using Desmos!

## References:

- <https://uwaterloo.ca/math/news/top-5-expressions-mathematics-art>
- <https://www.sciencealert.com/7-times-mathematics-became-art-and-blew-our-minds>
- <https://medium.com/nice-slice/art-and-mathematics-a2677a515450>

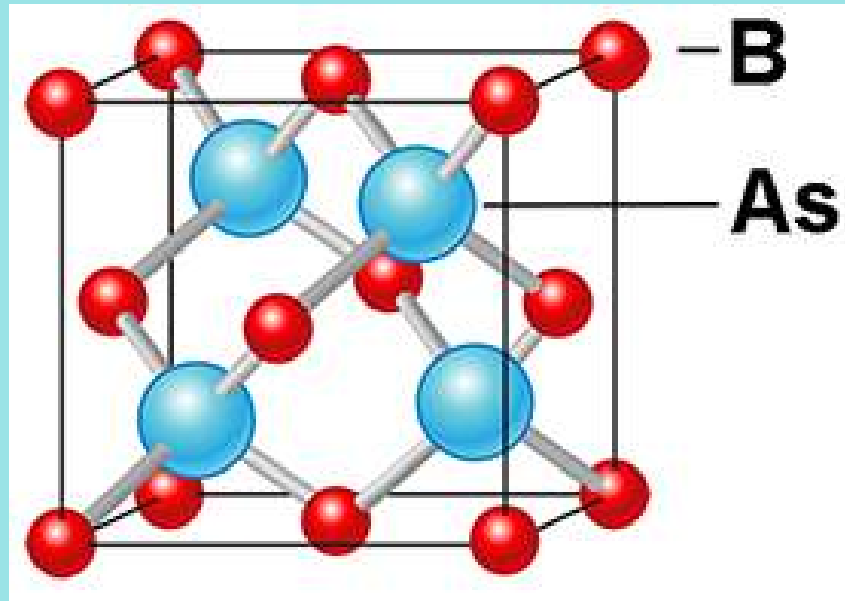
# SCIENCE AND TECHNOLOGY NEWS

JAN-MAR 2023

## Cubic BORON ARSENIDE

### THE NEXT GENERATION SUPER SEMICONDUCTOR?

Researchers from MIT and elsewhere have found this material can perform much better than silicon. The next step is finding practical and economic ways to manufacture it



The findings were reported on July 21, 2022, in the journal *Science*, in a paper by MIT postdoc Jungwoo Shin and MIT professor of mechanical engineering Gang Chen; Zhifeng Ren at the University of Houston; and 14 others at MIT,

#### KEY PARAMETERS WHICH MAKES IT PROMISING COMPARED TO SILICON

- 1) electron mobility in cubic boron arsenide could reach as high as 3,000 cm<sup>2</sup>/V/s as compared to 1,000 cm<sup>2</sup>/V/s
- 2) Boron arsenide has a thermal conductivity that is ten times greater than silicon.

Cubic boron arsenide has so far only been made and tested in small, lab-scale batches that are not uniform. Future challenge

#### References and further reading

<https://scitechdaily.com/mit-discovers-semiconductor-that-can-perform-far-better-than-silicon/>

<https://www.science.org/doi/10.1126/science.abn4290>



Professor Gang Chen at his work desk  
Made theoretical predictions for Boron Arsenide.

Image used courtesy of MIT MECH



## CENTRAL BANK DIGITAL CURRENCY (CBDC)

### Introduction:

The year 2009 became a historic year in the world of currencies. The first decentralized cryptocurrency Bitcoin was launched to do away with Government control on currency and to maintain anonymity in Financial transactions. As per data available[1] there are more than 9000 such Cryptocurrencies, of which 70 of them have a market capitalization exceeding \$1 billion.

The crave for Cryptocurrency, could be gauged in the younger generation, wherein you must have interacted with your friends talking about investments in these currencies, without knowing its legal standing and working of the system.

To counter this challenge of Digital Decentralized Currency (One can call it private Currency) , world over the Central banks fastened the process to have its own digital currency called as Central Bank Digital Currency (CBDC).

### Central Bank Digital Currencies (CBDCs):

CBDCs[2], are issued by government-mandated financial institutions, they hold equal legal status as their fiat currency counterparts. CBDCs could be used for various purposes by individuals and businesses (retail CBDCs) and financial institutions for interbank transactions (wholesale CBDCs.)

### Potential benefits of CBDC

- With CBDCs, central banks are looking to leverage the flexibility of cryptocurrencies for economic development while limiting their potential risks to ensure financial stability.
- More precisely, central banks put forward three significant benefits to issue digital cash:
  - (a) The need for paper cash substitutes – In India we have seen the surge of UPI based money transfer/Payment solutions widely accepted. In fact for CBDC, UPI would be a big competitor and barrier.
  - (b) CBDCs for financial inclusion- One of the essential drivers for CBDCs' popularity is its ability to nurture broader financial inclusion. CBDCs would allow everyone to generate electronic payments in central bank money as users wouldn't need a conventional bank account to leverage digital cash.
  - (c) Efficiencies in the payment system - With government central bank currencies, this type of transaction would not require going through different banks (from one bank deposit to the other) and take several days. It could all happen in seconds on one digital ledger and slash associated costs.

### Indian Scenario:

At present, India has neither banned nor legalized Virtual Digital assets (VDA) (avoided the use of term Cryptocurrency) , but has made provisions for flat 30 % tax on gains and provision for 1 % TDS on transactions in VDAs for data gathering purpose.

Our Central Bank the Reserve Bank of India (RBI) came out with a concept note[3] explaining the need and structure of the Currency. This document is a must read for all students.

The RBI introduced the CBDC in form of a pilot project in two forms i.e. Digital Rupee for Wholesale (₹-W) to cater to financial institutions for interbank settlements (launched on 1st November 2022) and Digital Rupee for Retail (₹-R) for consumer and business transactions (launched on 1st December 2022).

### Opportunity:

All the Digital currencies in existence till date are dependent upon the internet for their real time functioning. The game changer for CBDC would be to get in technology which would function without the need of active internet. Work is already underway in this direction and provides technocrats a good opportunity to work in this domain.

#### References

1. <https://en.wikipedia.org/wiki/Cryptocurrency>
2. <https://www.thalesgroup.com/en/markets/digital-identity-and-security/banking-payment/digital-currency>
3. <https://rbidocs.rbi.org.in/rdocs//PublicationReport/Pdfs/CONCEPTNOTEACB531172E0B4DFC9A6E506C2C24FFB6.PDF>

## Digital Payments: India Leading the way

### Introduction:

The Digital India programme is a flagship programme of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy. "Faceless, Paperless, Cashless" is one of the professed role of Digital India. As part of promoting cashless transactions and converting India into less-cash society, various modes of digital payments are available.[1]

The following modes of Digital Payments are actively used in India:



#### BANKING CARDS (DEBIT / CREDIT / CASH / TRAVEL / OTHERS)

Banking cards offer consumers more security, convenience, and control than any other payment method. These cards provide 2 factor authentication for secure payments e.g secure PIN and OTP.



#### UNSTRUCTURED SUPPLEMENTARY SERVICE DATA (USSD)

The innovative payment service \*99# works on Unstructured Supplementary Service Data (USSD) channel. This service allows mobile banking transactions using basic feature mobile phone, there is no need to have mobile internet data facility for using USSD based mobile banking.



#### AADHAAR ENABLED PAYMENT SYSTEM (AEPS)

AEPS is a bank led model which allows online interoperable financial transaction at PoS (Point of Sale / Micro ATM) through the Business Correspondent (BC)/Bank Mitra of any bank using the Aadhaar authentication.



#### UNIFIED PAYMENTS INTERFACE (UPI)

Unified Payments Interface (UPI) is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood.



#### MOBILE WALLETS

A mobile wallet is a way to carry cash in digital format. You can link your credit card or debit card information in mobile device to mobile wallet application or you can transfer money online to mobile wallet.



#### INTERNET BANKING

Internet banking, also known as online banking, e-banking or virtual banking, is an electronic payment system that enables customers of a bank or other financial institution to conduct a range of financial transactions through the financial institution's website.



### Leading the Digital Payment Revolution in India

Unified Payments Interface (UPI) is an instant real-time payment system developed by National Payments Corporation of India (NPCI). The interface facilitates inter-bank peer-to-peer (P2P) and person-to-merchant (P2M) transactions [2] It is used on mobile devices to instantly transfer funds between two bank accounts .

The mobile number on the device is required to be registered with the bank. The UPI ID of the recipient can be used to transfer money. It runs as an open source application programming interface (API) on top of Immediate Payment Service (IMPS) and is regulated by the Reserve Bank of India (RBI). As of September 2022, there were 358 banks available on the platform with a monthly volume of 6.7 billion transactions[5] amounting to ₹11.16 lakh crore (US\$140 billion)



#### UPI LITE

UPI lite is a new payment solution that leverages the trusted NPCI [3]Common Library (CL) application to process low value transactions that have been set at below ₹ 200. The solution runs off existing UPI ecosystem protocols for mobile phones to ensure commonality, compliance and system acceptance. UPI LITE experience is intended to be a customer-friendly approach to enabling low value transactions without utilizing a Remitter bank's core banking systems in real-time, while providing adequate risk mitigation.

#### References

- 1.<http://cashlessindia.gov.in/ussd.html>
2. [https://en.wikipedia.org/wiki/Unified\\_Payments\\_Interface](https://en.wikipedia.org/wiki/Unified_Payments_Interface)
- 3.<https://www.npci.org.in/what-we-do/upi/product-overview>



# CELEBRATING INDIA'S G20 PRESIDENCY

1st DECEMBER 2022 to 30th NOVEMBER 2023



वसुधैव कुटुम्बकम्

ONE EARTH • ONE FAMILY • ONE FUTURE

## LOGO

The G20 Logo draws inspiration from the vibrant colours of India's national flag – saffron, white and green, and blue. It juxtaposes planet Earth with the lotus, India's national flower that reflects growth amid challenges. The Earth reflects India's pro-planet approach to life, one in perfect harmony with nature. Below the G20 logo is "Bharat", written in the Devanagari script.

## Historical Background of G20

The Group of Twenty (G20) is the premier forum for international economic cooperation. It plays an important role in shaping and strengthening global architecture and governance on all major international economic issues.

The G20 was founded in 1999 after the Asian financial crisis as a forum for the Finance Ministers and Central Bank Governors to discuss global economic and financial issues.

The G20 was upgraded to the level of Heads of State/Government in the wake of the global economic and financial crisis of 2007, and, in 2009, was designated the "premier forum for international economic cooperation".

The G20 Summit is held annually, under the leadership of a rotating Presidency. The G20 initially focused largely on broad macroeconomic issues, but it has since expanded its agenda to inter-alia include trade, climate change, sustainable development, health, agriculture, energy, environment, climate change, and anti-corruption.

## How G20 Works

- The G20 Presidency steers the G20 agenda for one year and hosts the Summit. The G20 consists of two parallel tracks: the Finance Track and the Sherpa Track. Finance Ministers and Central Bank Governors lead the Finance Track while Sherpas lead the Sherpa Track after Finance Track.

- The G20 process from the Sherpa side is coordinated by the Sherpas of member countries, who are personal emissaries of the Leaders. Finance Track is led by Finance Ministers and Central Bank Governors of the member countries. Within the two tracks, there are thematically oriented working groups in which representatives from the relevant ministries of the members as well as from invited/guest countries and various international organizations participate.

The Finance Track is mainly led by the Ministry of Finance. These working groups meet regularly throughout the term of each Presidency. The Sherpas oversee negotiations over the course of the year, discussing agenda items for the Summit and coordinating the substantive work of the G20.

The Group does not have a permanent secretariat. The Presidency is supported by the Troika – previous, current and incoming Presidency. During India's Presidency, the troika will comprise Indonesia, India and Brazil, respectively.

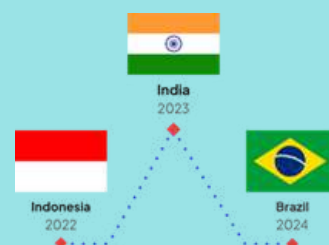
For further reading visit <https://g20.mygov.in/>

## THEME

The theme of India's G20 Presidency - "Vasudhaiva Kutumbakam" or "One Earth • One Family • One Future" - is drawn from the ancient Sanskrit text of the Maha Upanishad. Essentially, the theme affirms the value of all life – human, animal, plant, and microorganisms – and their interconnectedness on the planet Earth and in the wider universe.



G20 Nations



G20 Presidencies

# Motivational

## CORNER

### COURSES YOU CAN PURSUE IN SEMESTER II FOR SKILL DEVELOPMENT

**Complete at least one  
course from these  
resources.  
NPTEL registrations  
will close soon.  
So hurry up.**



### SkillsBuild Program



# NPTEL

NATIONAL PROGRAM ON TECHNOLOGY  
ENHANCED LEARNING LOCAL CHAPTER

#### Tips for Academic Success

##### **Come up with a study plan –**

Which study strategies have worked for you in the past?

Which have not?

How do you want to study for a particular course?

Ask your professor for feedback on your plan.

##### **Be engaged during class -**

Participate...

by staying awake, taking good notes, thinking through the material being presented, and making a note of material that's confusing or any questions you have.

##### **Meet with professors –**

Let them see you as a motivated student!

Give them the opportunity to see what you know and what you can do.

Ask questions, seek out clarification, ask for study tips.

##### **Study actively –**

Do something with new material.

Read your notes out loud, reorganize them.

Draw pictures, make charts.

Do a problem or two.

Teach the concept to someone else!

Be an active learner everyday

#### Tips for Academic Success

##### **Form a study group –**

Never underestimate the value of your peers, especially when working through a difficult problem set or reading assignment.

##### **Practice self-discipline & form habits –**

Practice reaching campus on time and utilizing your time prudently

when a task needs to be done, sit down and do it.

Don't bargain with yourself.

##### **Keep a positive attitude –**

Be confident in your abilities and try to relax! Post positive and encouraging

messages in your study space.

If you are worried about something, write it down and set it aside to be taken care of later.

##### **Stay motivated –**

Remember your goals or set goals if you haven't.

Make study fun by using digital content for learning concepts better

Join student clubs at the Institute and interact with others

Reward yourself for study goals met

contributed by Dr. Adlete Mascarenhas

keep yourself a Happy learner



# UPCOMING EVENTS/ DATES

# 2023



**JAN  
12**

**PARENT FACULTY  
MEET**

**SEMESTER I ENDS**

**JAN  
21**

**JAN  
30**

**SEMESTER I EXAM  
STARTS**

**COMMENCEMENT OF  
SEMESTER II**

**FEB  
20**

**FEB  
21**

**INTERNATIONAL  
MOTHER LANGUAGE  
DAY CELEBRATION**

**NATIONAL SCIENCE  
DAY CELEBRATION**

**FEB  
28**

**MAR  
16**

**VISIT TO CHARITY  
HOME**

***Wishing success at your semester - I B.E Exam!***