



IIT PALAKKAD



2<sup>nd</sup> EDITION  
DEC, 2020

# FOOTPRINTS

ALUMNI CELL

## CONTENTS

<b>Alumni Section</b>	
<u>A proud moment for IIT Palakkad</u>	1
<u>Epigrams</u>	2
<b>Institute Updates</b>	
<u>The Musings</u>	4
<u>M.Tech inauguration</u>	6
<u>Internships and Placements</u>	7
<u>Research scholars day</u>	8
<u>Inauguration of Nila Campus</u>	10
<b>Student Activities</b>	
<u>Pep talks by Petrichor</u>	12
<u>Campus Spotlight</u>	13
<u>Clubs and societies</u>	14
<u>Virtual General Championship</u>	17
<b>Footprints Interview</b>	
<u>A peek into the personality of Dr. M.S. Mathews</u>	18
<u>Vote of thanks</u>	30

## A proud moment for IIT Palakkad

One of our alumni, **Mr. Prasanna Venkatesan Ravindran**, has been chosen for the **IEEE EDS Masters Student fellowship**! The fellowship is a one-year program awarded to promote, recognize, and support Masters study and research within the IEEE's Electron Device Society's (EDS) field of interest, which includes all electron and ion based devices.



**Mr. Prasanna Venkatesan Ravindran**  
Alumnus, B'15, EE

It is noteworthy that the fellowship is provided to only three students, one each from the three geographical regions: the Americas, Europe/Middle East/Africa, and the Asia & Pacific. Also, only one student can avail the fellowship from an educational institution.

We heartily congratulate him on his outstanding achievement- the result of his relentless, resilient efforts!

## Epigrams

1. The most memorable moments of your B.Tech Life ...

“Trip to Goa and Ishrat ka janamdin.”

2. One sure-shot advice for your juniors ...

“Don’t stop playing and enjoying in any case.”

3. What's the best quality you gained in these four years?

“Improvisation and adaptation.”

4. If you get to come back to college, what will be the first thing you would do?

“Go back to my old hostel room and write back all the names and ‘quotes’ on the walls.”



**Ankuj Dahiya**

Alumnus, B'15, CE

1. The most memorable moments of your B.Tech Life ...

“Watching the sunset during our trip to Goa”

2. One sure-shot advice for your juniors ...

“I'd advise focusing on internships to gain useful skills and perspective on the ‘outside world’ to orient yourself appropriately by the time you leave.”

3. What's the best quality you gained in these four years?

“Learned to appreciate others’ efforts.”

4. If you get to come back to college, what will be the first thing you would do?

“If I get a chance, I would practice more programming.”



**Jude K Anil**

Alumnus, B'15, CSE

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## 1. The most memorable moments of your B.Tech Life ...

“To be a part of the project, which helped a person lead a better and comfortable life.”

## 2. One sure-shot advice for your juniors ...

“Do lots of projects which can have an impact on society and make it a better place. Also, enjoy your time in college; it will turn out to be the best four years of your life.”

## 3. What's the best quality you gained in these four years?

“To be curious about innovation and technology, and develop an interest in research.”

## 4. If you get to come back to college, what will be the first thing you would do?

“Wander around the campus and go to places where I have so many memories.”



Anjali Agarwal

Alumna, B'16, EE

## 1. The most memorable moments of your B.Tech Life ...

“1st Petrichor and last Diwali celebrations.”

## 2. One sure-shot advice for your juniors ...

“Never regret and always trust your choices.”

## 3. What's the best quality you gained in these four years?

“Reliability.”

## 4. If you get to come back to college, what will be the first thing you would do?

“Will explore the Permanent Campus.”



Chiluveru Apoorva

Alumna, B'16, CE

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## The Musings

### Institute Faculty Seminar

As an initiative to adapt to the new normal, the Institute Faculty has left no stone unturned to impart knowledge via online platforms. The Institute Faculty Seminars are being organized regularly based on the research works of the faculty members. Some of the main domains covered in the past few months were dead-time induced oscillations in the field of power electronics by Dr. Anirudh Guha, a novelty in the approach for drilling engineering materials by Dr. Afzaal Ahmed, the study of the Alexander phenomenon in the field of mathematics by Dr. Jaikrishnan Janardhanan, the disparity in income poverty in the field of economics by Dr. Amrita Roy, and the models of quantum spin liquids by Dr. Kusum Dhochak.

### Establishment of Board of Students

The Institute established the Board of Students (BoS) to develop a range of student welfare programs and to mentor students across multiple disciplines. The SAC Constitution's official work has begun. BoS is an initial step towards the institute's constitution.

## The Library system has gone online

The library system has shifted its activities online. Now, students can access the plethora of books right from the comfort of their homes. Cambridge University E-books and Pearson e-Library are activated for our institute under trial access for a limited period.

## Technical Council Talks

Upon taking up the position of the Chief Innovation Officer, Ms. Anuradha Shankar is constantly pushing the technical community forward by conducting many talks related to entrepreneurship and startups to help students explore these terrains. Currently, CSquare innovation lab is conducting an entrepreneurship series (DESIGN THINKING & PROBLEM-SOLVING TECHNIQUES) which aims to equip students with the skills and knowledge that an entrepreneur needs. An initiative has also been taken to relaunch the set of innovation lab projects that students can take up and work on while giving the liberty to the student community to host any problem statement. The technical council organized various other talks by some of the esteemed clubs and alumni from other IITs. The talks covered various domains like astronomy, mechanical solar trackers, hyperloops, etc.

## M.Tech Inauguration Ceremony

A total of 150 students have joined our six M.Tech programs and three M.Sc. programs. Four new M.Tech programs, namely, Data Science, Computing & Mathematics, System-on-chip Design and Power Electronics & Power Systems, and an M.Sc. program in Mathematics, have started this year.

A three-day orientation program for the new M.Sc., M.Tech., and research students, from 23rd September 2020 to 25th September 2020, was conducted. The inauguration ceremony, on the 23rd, was hosted by Ms. Teena Roy, Secretary, Academic Affairs. The welcoming address was given by Dr. Debarati Chatterjee, followed by the presidential address by our esteemed Director, Prof. P. B. Sunil Kumar, and an introduction to all the PG programmes by Prof. Job Kurian. The students were given in-depth information about the various research programmes by Prof. K. L. Sebastian and about the various course programs by Dr. Deepak Rajendraprasad on the next day. The students were also informed about the Moodle platform by our LMS Team and the Central Library Facilities by our Library Team. The third day was an amicable, informal, stream-wise interaction between the new students and their seniors to try the best to inculcate a sense of togetherness.



## Internships and Placements

Even amidst the pandemic and its hardships, the internship and placement processes are ensuing successfully without any glitches. This year all internship and placement activities are being conducted online.

At the beginning of this year's placement season, the CDC made arrangements for a placement training program to give the students some experience and practice on online tests, group discussions, and online interviews. Our students have been recruited to well-known companies such as Arista Networks, Mathworks, Cargill, Target Corporation, Signalchip Innovations, Kwazoo Inc., Achnet Technologies (Tescra Software), McKinsey & Company LLP, LTI Infotech, Go Lorry Pvt Ltd., etc. Furthermore, some students also bagged pre-placement offers in Adobe, Optum, and ITS Planners and Engineers.

Two students bagged internships at Amazon and one at Adobe. Later, Adobe also conducted a screening test for the students of sophomore and pre-final years, out of which eight students were selected for further rounds. Four of them bagged Adobe Summer Internships. Later this year, the RAAM group offered internships to students interested in management. Many students applied for the initial selection process. All these internships were introduced through the CDC.

## Research Scholars' Day (RSD)

The third edition of Research Scholars' Day (RSD) was held on September 26, 2020, as a virtual (online) event. The Research Scholars' Day is being held for the past three years with the sole aim of promoting and showcasing the research activities conducted by the research scholars of IIT Palakkad and to encourage and motivate the students even further.

Before the RSD, all the departments of IIT Palakkad, namely- Chemistry, Civil Engineering, Computer Science, Electrical Engineering, Humanities, Mathematics, Mechanical Engineering, and Physics, held their in-house symposiums where many research scholars presented their work and the best speakers were selected from each department for the final student talks for RSD.

The in-house symposiums displayed a variety of interesting and innovative on-going research work from all the scholars, the topics ranging from quantum heat engines, biomedical applications in chemistry, synthesis of inhibitors, the impact of climate change, sociophonetic studies, deep learning, topic modeling, machine learning on time series data, post-silicon validation, complex analysis, holomorphic functions, approximation theory, to name a few.

The main event of the RSD was coordinated by Prof. Santha Kumar. The event started with an inaugural address from our esteemed director, Prof. P.B. Sunil Kumar. The keynote talk was by the eminent speaker, Prof. Biman Bagchi, Honorary Professor, Indian Institute for

Science, Bangalore. Prof. Bagchi gave an extremely insightful talk on the topic of the intriguing role of water in nature. The faculty talks were given by Dr. Ganesh Natarajan (ME), Dr. Anoop George (HSS), and Dr. Vishwas Venkatesh (PHY). These talks provided many interesting insights into the fields that our faculties are working in. Eight research scholars (one from each department) gave talks about their research work which threw light on the passion they have for their research and encouraged and inspired the beginners.

The RSD event ended with the concluding remarks from our esteemed Dean Academic Research, Prof. K.L. Sebastian. The event ended with fresh enthusiasm and drove home the spirit among everyone to continue and make progress in their research and academics with everlasting zeal.

## Inauguration of Nila Campus

IIT Palakkad is one step closer to realizing the dream home that hosts academic interface and cutting edge research. The date Oct 23rd, 2020 marked a significant milestone in the journey ahead.

Our Nila Campus was inaugurated by the honorable Chief Minister of Kerala, Shri Pinarayi Vijayan. The Foundation Stone of our main campus was laid by the honorable Minister of Education, Government of India, Shri Ramesh Pokhriyal 'Nishank'. Both these events were conducted online via video conferences.

## Take a Sneak Peek

All of us share a special bond with our alma mater. Despite the pandemic, all the construction activities are ongoing at our permanent campus. We are happy to share some of the glimpses of its growth.



Auditorium work in progress





Classroom Complex



Lab Building



Waterbody and picturesque of the campus



## Pep talks by Petrichor

On July 1st, 2020, Petrichor arranged for a mental health awareness session with guest speaker Sucheta Pal, ambassador of Zumba in India. Her life as an engineering student, the story of her breakdown, and then her grand comeback, made the audience aware of the importance of Mental Health and inspired them to listen and talk about it without fear or embarrassment. Depression and anxiety are not just phases of life and Sucheta's journey back from a bad place in life was a stimulating tale of fighting stress with passion and motivation. In these trying times, this was a much-needed pep talk.

Besides this 40-minute engrossing talk, which is available on Petrichor's [Instagram handle](#), Petrichor also arranged 3 live-concert sessions called "Quarantunes". The first Quarantune was by Heeral Chhatralia, a rising playback singer, in association with 7 Entertainment, who completely mesmerized the audience with her melodious voice. Nikhil Paul George, again in association with 7 Entertainment, lit up the moods of everyone watching with his irresistibly soothing style. The third Quarantune, in association with Shanti Amplified, was by Vasu Raina who gave us yet another wonderfully joyous session to remember! All of these sessions are available on the Instagram handle of Petrichor.

## Campus Spotlight

The radio podcast of IIT Palakkad, Campus Spotlight, made its breakthrough by organizing an informal farewell for Batch 2016. The students went down memory lane and reminisced about all the fun experiences that IIT Palakkad has given them.

On Friendship Day, our RJs invited students to take to this platform and share their friendship stories. From making BFF pairs answer some light-hearted, bond strengthening questions to pulling some amazing pranks, this show had it all!

Campus Spotlight also started a series of episodes, T-Talks to get to know our respected professors and the first guest of this show was Prof. KVG Kutty.

On Gandhi Jayanti, a special edition was released in collaboration with the Vadya Club. Indeed a very informative episode, where not only Babu was talked about but also Lal Bahadur Shastri's life and controversial death was shed light upon. Team Vadya started the show with "Bande mein tha dum" and I think we can all agree that Bande mein dum tha!

All of the podcasts are published and available on [YouTube](#) and [Spotify](#).

## Clubs and Societies

Even in these unprecedented times, the clubs and associations of IIT Palakkad didn't fail to engage and entertain the people. Almost all the clubs organized online competitions via social media platforms. Moreover, the competitions were open to all the enthusiasts across the globe, providing them a chance to showcase their talent and creativity.

**ACE** was proud to share the news that two teams from our college secured positions in the top three ranks for different problem statements in the competition Build O' Innovate organized by the Association of Civil Engineers, IIT Patna in collaboration with District Administration, Bhojpur (Bihar).

**Akshar** - the Literary Arts Society, has always been an active organizer of quizzes and writing events. All through the quarantine period, Akshar conducted many quizzes on various themes like web series, sports, and entertainment. The club also celebrated the occasion of Gandhi Jayanti via a writing competition. On the occasion of World Dictionary Day, the club offered insights into the different languages spoken in India via their Instagram handle. The club's Instagram handle also provides insights into some of the famous novels via short summaries.

**Bioscope** - the Film Making Club, organized a video editing competition 'Just Cut It' which was open to all the video editing enthusiasts. The competition witnessed huge participation from the students and Alumni of IIT Palakkad.

**Grafica** - the Arts Club, organized 'Artico' - the first-ever digital art contest. The themes for the competition revolved around music, love and anime. Around 15 people participated in the competition, flashing their artistry.





**Shutterbug** - the Photography Club, organized an indoor photography challenge for all the students of IIT Palakkad. The limelight of the competition was on the mesmerizing stills captured by the photographers within their homes.



**SPIC MACAY** also organized 'Rendezvous Series- Cinema Classics' via Zoom which included the screening of a Bengali movie "Jalsaghar", an Italian movie "La Strada" and a Telugu musical drama film "Sankarabharanam".

**Sync to Beat** - the Dance Club, conducted an online solo dance competition 'In Sync', motivating all the dance enthusiasts to loosen up from their daily grind. The highlight was the mesmerizing performances by all 32 entries for the competition.





**Vadya** - the Music Club, conducted a virtual Open Mic for all the music enthusiasts. The competition was divided into different categories of solo singing, solo instrumental, and a mix of vocals and instruments.





## Virtual General Championship

The online semester has been strenuous for all the students. The gym and sports enthusiasts find it especially vexing because of the restrictions on outdoor activities. In an attempt to remedy the situation, the Sports Council of our institute has made efforts to keep the competing spirit among the students alive.

The initiative of a General Championship across all the batches was made, albeit virtually, this year by the council. An inter-batch chess tournament was organized, with a team monitoring each game for fair play. The second event was a Sports Quiz that covered questions from a diverse variety of games played throughout the world. In both competitions, the first position was secured by the students of Batch 2019.

While the General Championship is preparing to host more competitions virtually this term, it promises to be a sporting extravaganza in the coming years.

## A peek into the personality of Prof. M.S. Mathews

### Overview

Dr. M.S. Mathews was one of the beloved faculties of the earliest B.Tech batches of IIT Palakkad. As a former Professor in the Dept. of Civil Engineering at IIT Madras, he brought in a ton of experience into IIT Palakkad. He is currently retired and is spending his time authoring a book.



To reminisce their memories together, we invited four of our alumni from batch 2015 to be a part of the last few minutes of the interview. The invitees were Imran Khan, Ishan Agrawal, Mregank Soni and Rajesh Kumar Meena.

### Questions

**The lockdown has caused changes in all our lives. How well have you been coping with the new normal?**

The lockdown has been a blessing for me. No disturbances and a whole lot of 'Me Time'! It has been a pleasant experience, setting aside the situation with COVID 19. I would suggest everyone take precautions and keep themselves safe. I have been making the best out of the situation and enjoying my time.

**We heard that you are a passionate painter. How did you develop this love for art? Has the lockdown aided you in developing your passion?**

My interest in painting started years ago. I have been fortunate enough to see some of the major museums and the original works of various artists in the US, Germany, England, Holland, and several other places. I have been very inspired by all the paintings and eventually developed a passion for it.

Due to many difficulties that came about with the onset of the lockdown, I have lost a lot of my painting equipment. So, as of now, I'm delving into literature and trying to master it. I'll try to finish a book or two before starting to paint once again.

**You have been a part of IIT Madras since it was about 5-6 years old, which is about the same age as IIT Palakkad right now. How did you decide to join IIT Madras which was a budding institute back then?**

I remember taking the Joint Entrance Exam in 1964. I was one of the very few South Indians to clear the exam. In those days, there were only a few pre universities in South India. So, most of my classmates were North Indians. The one good thing about my BTech days was that I had classmates from all over the country. From Kanyakumari to Kashmir, Gujarat to Calcutta.

The environment, I believe has thus, been a major contributor to my personality. It was a great exposure educationally, structurally, and scientifically. It expanded my mind, vision, and thinking abilities. I was simply an ordinary student. It was a 5-year long BTech program and was quite tough for me. But I managed to perform well, and even now, I believe, that is the foundation of my work, including lecturing.

My Parents knew Prof. Verghese of IIT Madras. He had acquired his education from Harvard University and was the first HoD of his department. He suggested me to join IIT Madras. He also told us that the IIT was new and that many people were confusing IIT Madras with ITI Madras back then. I remember people would correct me when I told them about my education, saying, 'Oh, ITI Madras, is it?'. [chuckles] Moreover, IIT Madras had a good collaboration with Germany. There were around 25 German professors back then on the campus teaching BTech students, out of which 4 professors had taught me different subjects. The institute had some of the finest labs even in those days. So I feel very fortunate to have studied in an IIT, even when nobody knew what an IIT was.

### **Did you learn German, sir?**

Of course, I had studied German as a part of my BTech program. In fact, when I was in Germany, I could manage myself well, for transportation purposes, and so on. I would also recommend you all to study Spanish. After English, it is the most popular language in the world. Besides, Spanish is a gorgeous language and the people there are really fun-loving, much like Indians. So I would definitely recommend that.

### **We heard that your wife wrote a book about you. What was the inspiration behind such a beautiful gift?**

Yes, that's true. It's a light-hearted and humorous book, I would say. I had a lot of adventures and misadventures in my life. I would often make people laugh while sharing my experiences. So, one day my wife thought of penning all such stories down and it turned out to be a very successful book.



**What made you choose this profession? What was your inspiration during the initial days of your career?**

I come from very humble roots. So acquiring a quality education was my only route for success. My parents had studied only till HSC and in those days, the most popular education models were to become a doctor or an engineer. A doctor spends his entire day with sick people, incising, and seeing blood. So, I didn't think of it as an option for me. Whereas, as an engineer or a professor, I get to be with cheerful young people like you. It makes me feel happier from the inside.

**How did you make the choice of teaching over engineering?**

That, I would say, is almost an accident. Because I was trained in my BTech and MTech years as a Design Engineer, my passion was to design. As part of my MTech degree, I designed the second multi-storey building in Chennai, standing to date. I was also a Construction Engineer participant in the design of a bridge. My dream was to become a designer of skyscrapers in a top firm in the USA. Unfortunately, design companies don't treat their employees well, and there is also the issue of poor job security. So, I moved towards lectureship. And once you move to an IIT to become a professor, you have to do a PhD. Hence, my dream of becoming a top designer remains a dream. I entered academia and the rest is history.



**You've been an Undergrad, did your Masters and Ph.D., became a professor, and later the HoD at IIT Madras. And after some 50 years, IIT Madras has become one of the most regarded institutions across the country. What values do you think were crucially instilled that helped the institute grow into what it is today?**

That is a good question. The first Director and the first set of HoDs had attained their Ph.D. from the top universities of the US. They introduced a culture of hard work! If you go to IIT Madras, even now, the lights will be burning 24x7, never shutting down. There's a culture of working hard and round the clock. The second factor is the admission into IITs. Before reservations were imposed, the criterion for selection was purely based on merit, free from fraud, confusion, or influence. IITs got the best people selected as the faculty and students. So, you have an environment of hard-working, intelligent students and teachers. Third, you have security. As a student, if you pass everything, nobody troubles you. If you do your work well, nobody bothers you, as a faculty member. Also, there was not much attention from the general public, as the institute was not really famous in those days. So, it was free from any political interference. Lack of political influence, quiet work, high productivity, dedicated faculty and students, very strict norms for exams, and much more lead to the foundation of a strong educational institution.

**The media and outside interference are huge in recent times. If that was not the case, do you think what IIT Madras is now, it would have achieved earlier?**

Well, it would be safe to say that if all the factors mentioned [above], like dedicated work, lack of interference of politics, security for students and staff are retained, not only IITM but any IIT can beat MIT to become the best in the world. We Indians are intelligent. But, somewhere all these frictional breaks keep occurring and pulling us back.

**Most people remember you as one of the best teachers to have ever taught them. What is your mantra behind keeping a class engaged while delivering lectures?**

I've been a student and hundreds of teachers have taught me. So, I have seen a spectrum of teachers - from really good ones to not so good ones. I focused upon what the qualities of a good teacher were. I put together those qualities, simulated them, and started developing them so that I bring them all together, while I deliver lectures.

Most importantly, when you are dealing with difficult concepts, you have to create an environment of humor. All students must feel good. You can say that I deliver a concept in the form of a sandwich. The bread constitutes the jokes and the concepts form the filling of the sandwich. Ultimately, it's a sandwich that everybody likes to eat.

**Due to the COVID 19 situation, the dynamics of the teaching-learning process has changed adversely. How do you think students and teachers can turn the situation around in their favor?**

All of us appear on a flat-screen for online classes. The physical interaction, the eye contact, the ability to read the changes in the facial expressions of students are all missing. So, it is up to the computer scientists to recreate this classroom environment so that the teacher and all of the students can come into a room virtually. I may not come and touch you or feel you, but I can see you smiling or nodding your head. If that type of creation is made possible, then we are all set to have good online classes. That can be a big step forward.

**You have taught the first three batches of IIT Palakkad in their first years when they are in the process of shifting from the science gear to the engineering gear. How is teaching freshers different from teaching those who have already entered the core subjects?**

In the first year, all the teachers should showcase the strong relationship which exists between physics, chemistry, mathematics, biology, and engineering. While teaching Newton's third law, show the theory on one hand and the rocket as an application of the law on the other hand. For instance, how the gases push it [rocket] forward, or by bringing a balloon in the class and asking a student to untie and see the balloon going up like a rocket. This helps visualize the relationship between physics and engineering. Similarly, you should be able to relate all the laws you've studied in physics and chemistry, theorems in maths and computer science, with engineering. Your knowledge of physics, chemistry, biology, etc. you acquire in the first year is the foundation of your engineering career. Unless it is made clear, some BTech students do get confused. I've seen some of my classmates, who were in the fifth year, going with a book [on the above-mentioned subjects] in their armpits. [chuckles] So every teacher who teaches first year students, not only those teaching engineering subjects, should link you [students] up with engineering, so that there is no discontinuity between what you have studied and what you are going to study.

**Many of us are anxious about internships, jobs, and teaching [teachers] in this COVID period and even without it. Could you give a few words to the student community and the faculty in this context?**

The teachers who are getting poor feedback from students or having less than one or two years of experience should be humble enough to approach senior professors and discuss with them why they are getting poor feedbacks, or why they don't feel confident. They should



have the humility to ask any senior professor to sit in his/her class and give feedback on their teaching. Not having the curiosity or an internal desire to become a good teacher can cause them to remain the same for their entire career span.

An internship is a combined effort of students and the institute. The student leaders should form a compendium, a small abstract booklet of each student. An A5 page for each student with a photograph, name, the subjects they've studied, their strengths, and hobbies. And this fine book must be circulated as much as possible. Now, you can also circulate it in an e-format. You don't even have to summarise. You can have six subject areas and make six PDFs, for sending to different companies. Secondly, the placement section should be very active with a dynamic placement officer, who takes his job very seriously, and is keenly interested in the student's welfare and interests, interact with the students and help them out. It becomes a rewarding experience.

**Sometimes a teacher's view might be that the students are not putting enough effort. And the students' view might be that the teacher is teaching poorly. How do you correct this situation? How do you decide who is responsible for this dilemma?**

If the teacher is doing an excellent job, you will find the first three rows of students paying attention. Looking into their eyes you can see that they are understanding what is being taught and perhaps appreciating everything. That means it's not the teacher's fault. However, nowadays, students have a lot of issues. If I see a serious problem, I will call those students personally to my office and discuss their issues with them. If it is a small disturbance, I would rather point it out in the class itself, as you might have seen. I call them out and leave it as a joke.



Once, when I was teaching American students in Arizona, I found a girl who started writing even before I explained anything. I called the student and asked her what she was doing. She looked at me in a bizarre way and gave some unconvincing answer. I felt that something was seriously wrong with the girl. Immediately after class, I went to the chairman of the department and told them that there might be some issue with that particular student and to look into it. Next week, I heard that the girl had tried to slit her wrist with a knife. So, clearly, it was not my fault as her teacher. I won't say it was her fault either. She was going through some personal issues. Since then, she has been taken care of by doctors, psychiatrists, counselors, and psychologists and is doing well.

Another incident that happened was when I was teaching the course 'Strength of Materials'. There were three students, two girls, and one boy, constantly talking amongst themselves. In classes in America, you are allowed to eat or drink or even walk out of the class in between, which doesn't happen here [India]. At the end of the hour, instead of notes, there would be a pile of peels and seeds of the oranges they had consumed. I constantly checked them throughout the classes, but their responses were very poor. After the first quiz, I distributed all the papers except those of the three students. I asked them to come and see me individually. I warned them that such behavior will not be tolerated in my class. Next class onwards, I saw them split and till the end of the semester, they were sitting apart from each other and were not disturbing the class either.

This way, a teacher has to be a psychologist as well. In the class, there could be problems with the students or there could be problems with the teacher. If the problem lies with the teacher, they should have the mindset to admit that they are wrong. In India, the students consider the teacher to be equal to God and hence, cannot make mistakes.

In America, students think, 'The teacher is an employee. I give dollars and he is employed to teach me'. So, there is a big difference. In short, student-teacher interaction is a very dynamic thing. Students might be afraid to confront the teacher, thus, the greater responsibility of the teaching-learning process rests with the teacher. The teacher should have the ability to understand himself as well as the different sets of students. For very effective teaching in private colleges (not in IITs), where the difference between the bright students and the poor students is much more highlighted, I used to divide, say a class of 40, into 10 batches mixing them all up. I taught these 10 batches conceptually. After each concept, I would ask each batch to discuss internally what we have learned and only after all have learned the concept properly do I move on to the next concept. This takes more time but ensures that every student has learned all the concepts. In this way, the teachers need to change their strategy, depending on the class.

**Another important part of your career, apart from being an excellent academician, is your work in restorations. How did that interest come about and why did you choose to do it?**

About 25 years back, I had the opportunity to attend a 2-week workshop in Delhi, conducted by central PWD. They had invited four Italian professors as guest speakers. This workshop opened my eyes to the possibility of restoration of monuments. I was intrigued by what I saw. The Italian professors talked about monuments that were 500-1000 years old, analyzing them on the computer, predicting their behavior, and studying how to repair them and strengthen them against earthquakes. This pierced my heart and the interest in that topic has caught hold of me right to this day. Today, with the computational capacities that we have, we can analyze the Taj Mahal without the need for anything else. When a severe earthquake comes, we can predict the point at which the Taj Mahal may start collapsing from. This knowledge can prevent it from happening.



In fact, one of my dreams was to strengthen the Taj Mahal and Qutub Minar, but unfortunately, I couldn't get the opportunity. The minarets [of Taj Mahal] are very thin and weak in bending. When there is a vibration due to an earthquake, all the four minarets will break and fall, and the big dome will crack. In the worst case, the dome may even fall. Today, we have a lot of techniques, by which we can prevent the collapse with little damage. Unfortunately, nobody in India is taking an interest. The Archeological Survey of India also lacks the knowledge to implement it.

**What is that one piece of advice that changed your life and you would want to share with others?**

Take a book and draw a circle in it. Divide the circle into 4 quadrants. Write down in one quadrant, 'professional life', second quadrant, 'family life', third quadrant, 'financial life', and 'spiritual life' in the fourth quadrant. Focus on all these quadrants equally. You work hard for the professional life quadrant, so that, you can come up to the highest levels of success that you can dream of. There's no limit to dreams. There is something called 'Growth Mindset vs. Fixed Mindset', and there is a lot of research on this particular topic. If you develop a growth mindset and aim for the Nobel prize today, you can very well get it, or if you want to climb Mt. Everest, you can. The second is your family life. You should take care to spent quality time with your family and children. It is very important that you guide your children and be with them especially for the first 6-10 years, when their brain develops the most. You have a financial life as well. After 40 years, you may find that the guy who was doing very well academically might be the poorest in the class. That's not always bad, but you do want decent money for yourself and live well.

For example, say, I have 1 lakh rupees in 1988. Now, I have many options as to what to do with it: one, keep it at home, two, put it in a bank, three, buy a piece of land and four, invest it in the Reliance stocks. The money I decide to keep at home will be the same today (Rs 1 lakh), but with lesser purchasing power, due to inflation. From the bank, I will surely get a little more money but that is of not much value because of inflation. If I had bought the land, it might have increased by a few percentages better than the first two, but, if I had invested in the Reliance stocks, it would have increased by around 800%. So, even if you have a small amount of savings, you have to pick up a little finance management, or you should have a friend or professional with whom you could sit and discuss all the options. You could have interest rates on your savings from 0% to 800% by the time you retire, and this is from my personal experience.

The fourth part is your spiritual life. By spiritual life, I don't mean that you have to be praying to God; you can be an atheist, agnostic, or anything else, but you should have some spiritual development. You are like a boat in an ocean. When a storm comes, the ocean will get turbulent. To save the boat from drowning, it should have an anchor that is sunk deep down and has hit the rock bottom. Take this analogy - the boat is you or your life, and the anchor is your spirituality, whatever your beliefs may be. Your spirituality needs to be strong to a point that whatever storms come in your life, you are sure enough that the storms won't rip you apart.

These are the four quadrants of the circle of life. If you focus on these from early on, you can surely lead a blissful life.



## Vote of thanks:

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