

Sitting Down with Dr Srijib Mukherjee

One of our distinguished alums, Dr Srijib Mukherjee is an academic with a distinguished background in engineering and research. He graduated in 1989 with a degree in Electrical Engineering. After completing his MSc and PhD, Dr Mukherjee spends his professional years in the USA. He is currently a Senior Scientist at Oak Ridge National Laboratory in Tennessee. The MIT Post had the opportunity to have a chat with him about his experiences here in Manipal and abroad.

You have had a varied education. Could you walk us through the different courses you have taken over the years?

In my opinion, the four classes of critical importance to anybody, whichever field they choose in a core curriculum, are—Mathematics, the three sciences, and a language which need not be only English. It can be anything from Kannada to Bengali or Spanish along with the social sciences. My young nephew loves learning about history, how modern engineering connects with it, how the world looks at the geographical system and GSI, and how they influence the climate. So, I will say these four are probably the foundation or the “core curriculum” of how one can succeed.

Q: You did your B.Sc in Physics before your BE degree. What was that thought process? Did you extensively plan that, or was it a go-with-the-flow kind of move?

I did not. When I finished high school, I had never considered pursuing engineering. I only sat for the NDA exam, and I cleared it. I did not pass the IIT exam, which upset my father, and my mom turned down the offer from the navy. Having missed my opportunity in engineering, I had to do something for the next six months, and this was the alternative—get

mature and get my feet wet. After high school, most people need time to understand what they want to do. Something like a community college for one or two years might help one to understand if engineering is their thing. Something that invokes the feeling, "I love doing this. I love fixing that". At that time, I remember having two options—one in VIT, Vellore for civil engineering and the other was Manipal. My father said, "We cannot make a civil engineer out of you, so we better make an electrical engineer out of you." That is how I ended up here. I graduated with distinction and was third in my class.

The experience of being in a B.Sc program and doing an engineering course provided you with maturity and a unique point of view that many might not have. How have you used that to your advantage?

Life is all about having broad knowledge. If you pursue a PhD in your interests, you might end up with a narrow but specific field of expertise. Unfortunately, this could reduce your employability. You just need to be constantly willing to learn. The biggest thing I learnt in engineering college is that the fundamentals will always be applicable. My son always asks me, "Papa, how can you solve math problems mentally and so quickly?" In India, we did not have calculators; even logarithm and trigonometry had big charts. It is like a layup in basketball. How do you get better at it? You take a million shots— just muscle memory. When you do it a lot, you get the ability to do it. So, we Indians are very good with this muscle memory since we focus on learning these applications mentally and eventually learn to apply them with ease.

You are an innovator who is active in various fields. This area of work does not promise results, and uncertainty is a given. So what makes you do it every day?

At this stage of my life and career, I am about six odd years from retirement. But I want to continue after that. I want to

do meaningful work. My generation was all about loyalty, growing yourself, showing respect, and growing wealth. But it also requires you to consider your values and the legacy you leave behind. Educators and faculty members here have their students. When Prof. Thomas talks about me, I am his legacy. So when he looks back on his career and life, looking at how his students have excelled is a big deal. As an engineer, what drives me is how I invented and made the world better. I tell all the young people I mentor, "If you get out of bed three days in a row feeling I dislike my work, I dislike the organisation I work for, the people I am surrounded with, then it is time to think about doing something else with your life." Taking that challenge and objective in a broader sense of knowledge. That is what it is about.

No job is a pleasant one. Each job comes with its positives and negatives. Off the top of your head, what is the best and the worst thing about your job?

I will start with the worst thing about my job. For me, it is the bureaucracy and anything to do with administration. We are part of a large governing system that requires rules, regulations, and paperwork. For example, the worst part of a teacher's job is to deal with the parents. You love your students but do not want to deal with the parents' whining. The best part about my job is working with my colleagues, faculty members, and my students and helping them succeed and improve their lives. Somebody helped me, and if I can do the same for others, it makes me feel better. Mentorship is the best part of my job. A great leader is a great mentor. Managing people is easy, '*Idhar chalo, udhar chalo*'. But I think I have made the world better by making that person better, correct?

How long has it been since you have been to Manipal again since graduation? How does it feel to see everything around you change?

I graduated in the '90s. So it has been about thirty-three years. I came back for my 25th reunion. That was the year I lost my mom. Prof. Kinny was kind enough to make me a distinguished alumnus with other great alums like Suri and Nadella. I feel honoured and humbled to be at this level in such an esteemed institute. My father loved Manipal, and so did I. I wish to help my children and nephews open their eyes to what life here is like. They have no idea. Wanting to help them drives me. It is not about helping the institution I went to in America. I want to help the institute that gave me my foundation here in India. I would not have been an engineer if it were not for India, not America.

The infrastructure growth and the people here just blow my mind. My brother told me how humble and wonderful the faculty members were to come to our room and shake our hands. Someone of Prof. Thomas and Prof. Kinny's stature takes the time to come out and even show us around and meet the students. It means the world to me. It blew my mind that we were picked up from the airport in a completely electric car. My American friends were all amazed. I said, "Yes, look how advanced Manipal is, and India is no longer a sleepy little place. It is now a growing giant." It is a known fact that some of the most brilliant engineers in the world are from India.

As someone currently pursuing an engineering degree in 2022 and wants to move forward in academia, much like you, what advice would you give me?

The line in academia between research and teaching is quite blurry. I would have never done a PhD if I was not threatened that I would lose my visa and they would cut my scholarship. However, the interest in doing advanced research came much later. At the time, I was more inclined towards teaching and helping people. Unfortunately, they did not support the teaching faculty as much as the research faculty. But the difference between teaching and research faculty is closing now. Research faculty do not want to be teachers, but the

teaching faculty want to be a part of the research.

Knowing what you want to do needs a deeper form of maturity and thinking. "EV" could be a buzzword. But it does not mean that just because society or your peers are doing it, you have to follow too. I was talking to my nephew, who is currently in 7th grade. He loves the humanities. In my generation in India, my father used to tell me you have to be an engineer or you have to be a doctor. That is not necessary anymore. You can choose what you love. Science is interdisciplinary. Humanities is interdisciplinary. In America, doctors have a humanities degree, and an English degree holder switches to engineering. You can switch to what you love anytime. Enjoy learning; what I am saying is do not go with peer pressure, go with what you love, go with what you are. If you love cooking, go into that, if you like music production, go into that, be a sound engineer even though the demand might not be much. Go into that, go into what you love. Follow your passion.