MA/MTech/MSc Orientation, 13ᵗʰ August 2018

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Welcome! Especially to the new students of MA (Development Studies), the first PG programme in SHSS.

You are all graduates of various colleges. You've come here to learn more and more. Paradoxically, you will first have to unlearn many things! IIT Mandi, and IITs in general, has a very different approach to academics and campus life. We give you much more freedom to make choices, but you are then responsible for any wrong choices that you make! We have continuous assessment, with many projects. Life in our residential campus outside class hours is an integral part of the academic experience. All this change will be a challenge, but you will benefit enormously.

In your career after IIT, change will be a constant factor. Indeed, you will experience ever increasing rate of change during your career of the next 30-40 years.

Consider science and engineering: for 1,000s of years, science was primarily *empirical*. Engineering relied on trial and error, on common-sense. In the last few 100 years, *theory* has come to play a more important role. Eg, Einstein's theory of relativity was a theoretical idea that was later confirmed empirically. Equations are used in engineering design.

In the past few decades, *computation* has become the 3ʳᵈ great paradigm of science and engineering. Eg. The 5-colour theorem was proved in 1890. The 4-colour theorem, proposed in 1852, defied proof for over 120 years. It was proved by computer in 1976, a proof that could not be checked manually!

Now, we are on the verge of the 4ᵗʰ paradigm – *data science*. Data science uses algorithms and computational systems to extract knowledge and insights from data. This promises to revolutionise science and engineering, to the extent that human intelligence may be replaced by machine intelligence for many purposes.

Notice the increasing rate of change: millennia to centuries to decades to years.

Consider day-to-day technologies: Automobiles, telephone, electricity – each took 100+ years from invention to widespread use throughout the world. The Internet took 30 years to become global. Facebook 10 years. Whatsapp 5 years. In the future, new technologies may take the world by storm in months, weeks or even days! Indeed, the point of singularity when machine intelligence will overtake human intelligence is just around the corner, 2030 – 2045, depending on whom you believe.

How will you cope with a world in which everything you've taken for granted, everything you've learnt in college is overturned in a few years, or less? The only answer is life-long learning. So, in IIT Mandi, we help you learn how to learn. This is the focus of our curricula, of our teaching, of our extra-curricular activities.

Conclusion

You are starting on a very important phase of your life. What you learn, the habits you acquire, the network of friends you make, will stay with you and serve you well for the rest of your career in a era of galloping, mind-boggling change. I wish you all the best in your stay here and look forward to your Scaling the Heights with IIT Mandi!