

BTech Orientation 1st August 2016

Welcome and congratulations.

This is a time of change for you. Change from the familiar home + school to college + hostel. Practically everything is new, including the mountain surroundings. I'm sure you are excited by this change, perhaps you find it a bit daunting, intimidating?

Change has been part of human existence since time immemorial, adapting to change is a defining characteristic of humans:

- We changed from cave-paintings in 20,000 BC to email and cellphones in 2,000 AD
- We changed from email and telephones in 2,000 AD to ever present Facebook, YouTube, Whatsapp and Internet commerce in 2016.

What might the future hold?

- Now: with networked smartphones – click a pic, upload it to Facebook in seconds
- Future: with brain wave sensors – think a thought, everyone in the world is aware of your thought in a fraction of a second
- Now: look at a few makes and colours of bicycles, choose one, it is delivered in a few hours
- Future: design your own unique bicycle (number and sizes of wheels, pedals, seat, frame material, etc), it is custom-built at a local 3-D printing shop and delivered to you in minutes.
- Now: machines have taken over much of manual labour. Computing machines have taken over much of routine computations
- Future: machine intelligence will surpass human intelligence within 15-30 years. Future students of IITs may learn directly from computers. Indeed, future students of IITs may be computers!

If you think these speculations are fanciful, read the work of Ian Morris, a Stanford historian. He has defined an index of social development. Using his index, the change in social development from cave-paintings to Internet is rated at 900. His analysis predicts that during the next 50 years, social development will increase to 3,000, and over the next 100 years to 6,000. I.e., the changes that you will see in your lifetime will be 2-3 times more dramatic than the change that has taken place since the Stone Ages. (My article “Looking Back to the Future” is available in *Essent* magazine on our website – it summarises Ian Morris's study.)

Unimaginable change is bound to happen in your lifetime. The question is how each one of you will adapt and thrive in this era of galloping change.

This new world of the future will bring tremendous engineering challenges in building it; social challenges in adapting to it; legal challenges in running it. You will be the designers, builders and users of this new world. Your 4 years here will prepare you for this momentous task.

In the past, during a BTech, teachers would drill knowledge and skills into you. These would serve you for a lifelong career. Now, the world is changing rapidly. Most of what you learn today becomes obsolete in a few years. In a decade or two, knowledge and skills may remain useful only for months or days.

So, at IIT Mandi, we have designed a completely new curriculum and experience for you. Key components are the practicum and projects which you will have during all 4 years. In these, you learn by doing, you learn how to learn on demand, you learn teamwork, you solve real problems of society.

Given that there is so much new for you at IIT Mandi, we have designed a unique 5-Week Induction Program (5WIP). Here, you will be introduced to this new method of learning, you will be helped to equip yourself with the skills essential to thrive in the IIT Mandi environment. Most importantly, you will get to know many of our faculty who will be your most important resource during the rest of your stay in our residential campus.

With the IIT Mandi philosophy of learning to learn, do not expect your teachers to spoon-feed information to you. Your teachers are here to open doors for you, it is for you to choose which door to explore. As Steve Jobs said, do not worry if the first door you enter is not the right one – leave it and try another one. Take advantage of your 4 years here to explore many avenues until you find the one that is your passion.

Conclusion

You are embarking on the next phase of your lives → in later years, you will look back to these as the most important, the most enjoyable period in your life. The faculty and staff and I will be with you to guide you to becoming the leaders of the future India.

Timothy A. Gonsalves
Director, IIT Mandi

References

- 1.1. Ian Morris, *The Measure of Civilization, How Social Development Decides the Fate of Nations*, Princeton University Press, 2014
- 2.2. T.A. Gonsalves, “Looking Back to the Future”, *Essent*, v. 1, n. 2, SCRI IIT Mandi, May 2016, pp. 3-7.
<http://students.iitmandi.ac.in/undergrad/pdf/Essent%201.2.pdf>