

By P J Narayanan

Technology education today integrates the understanding of technology with a focus on innovation. To maintain their relevance, engineering programmes are frequently updated in light of the ever-changing IT landscape by striking a balance between emerging technologies and maintaining a strong hold on the basics. While there has always been a broad bifurcation into hardware and software in advanced studies, institutions offer several specialisations that students can choose from. This is partly driven by the need to align themselves to new demands for combined skills by industry and partly driven by a marketing strategy. One has to be careful to read the fine print before choosing an option.

Most Indian institutions use generic titles for the MTech discipline. The course provides students with an understanding of fundamental concepts and the ability and skills to apply the knowledge. It also exposes them to the research process. Research brings to students the ability to discover solutions by applying knowledge to specific problems. This ability, once

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IT in depth

acquired, can be used in many ways. That is why technology product and software companies the world over look for professionals with good fundamental training and fair project exposure.

Ultimately, it is not just the name of the degree, but what the student has actually done during the course of study that counts. An advanced student is often defined by his or her thesis area. For example, computing technology now branches into every aspect of life, with research theses in areas such as computational biology, bioinformatics, medical robotics, computational linguistics, cyber security and more. National institutions like the IISc, IITs and the IIITs and several private institutions are research-focused today.

Computation has moved from making things work faster and more efficiently to the next level, making things more intelligent. This could be related to processes, products or anything else in the entire chain of computation. Driverless cars and predictive financial algorithms based on artificial intelligence (AI) are its examples. Hence, just computational knowledge is not enough. Gathering big data is not enough. Actionable intelligence in one's area of specialisation will become essential to grasp.

Future technologies will

same in India. These are not being utilised fully, in reality. Given the world we live in, one's education must hold one in good stead anywhere in the world, and one should not be limited by geography. If we are eager to solve our problems with seriousness and dedication, the world will come to us for their solutions tomorrow.

Small nations like Israel have proven that they can produce the technology behind several global brands, just by focusing on core technology. There is no auto manufacturer in the world that does not use core sensing and action technology from Israel. Hence, the opportunities today are immense, given that every aspect of life increasingly requires computational technology, and India has a long way to go in finding solutions for its own

market, which is one of the biggest in the world. Our start-ups should focus on our problems to gain the world's respect.

Lastly, there isn't a better time to take an

advanced degree in technology than today.

Grabbing the first job that comes one's way after graduating in engineering will not be the best career option in a world of fast-changing technologies. It is important

to build a deep educational track which will work for a lifetime and aspire to make a big difference with the tools at one's disposal today. Consider a Master's or even a

PhD degree in your area so that you can remain at the forefront of rapid changes and not be forced to follow others perpetually.

(The author is director, IIIT Hyderabad)

— As told to Dipal Gala

STUDY IN JAPAN W (EJU EXA

Japan Student Services Office, Tokyo) & MOSAI will c
supervision of Embassy
scholarship to Under Gradua
courses in all subjects in Japa
Minimum Qualification : 11th P
Online Application available

Application Period: 13th Febru
Exam Venue: New Delhi, Date
Email id: mosai.india@gmail.
Phone : 011- 23752964 / 2331



ILLUSTRATION: SACHIN VARADKAR

Future technologies will demand an understanding of both hardware and software, and communication technology skills. Internet of things (IoT), for example, will require networking knowledge, software that can translate millions of data points into meaningful knowledge, and communication technology that links all objects. Thus all three sides of the information and communications technology are required.

From a student's point of view, unstructured problem-solving is important. Understand what one knows and what one does not, and develop a research capability to find answers. There are many emerging areas in technology such as IoT, AI, cyber security, data sciences, analytics and more. Students must know that given the kind of industry demand, it is not only skills and knowledge, but what matters the most today is the ability to innovate within these areas and connect them with other areas.

The other area of concern seems to revolve around potential H1B visa restrictions. While going abroad for education and work has been a strong desire of many students, and there may be definite advantages to it, there are abundant opportunities to do the