Should you study Engineering or Humanities after COVID? Here's the honest answer

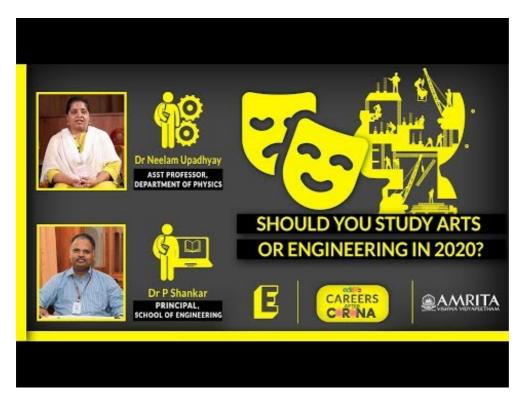Will AI, Big Data, Machine Learning dictate the job market by 2030? (Pic: Edexlive)

With the lockdown nearing its end and the world limping back to normal what will happen to the engineering sector? Will the Humanities vs Engineering debate still rage on or will it be just a tech-driven world? **Dr Neelam Upadhyay, Assistant Professor, Department of Sciences**, Amrita Vishwa Vidyapeetham and **Dr P Shankar, Principal of the Amrita School of Engineering** help us make sense of the future that awaits us. Excerpts from the conversation:

The Coronavirus has not just caused a health crisis but an economic crisis as well. With the job market being hit severely, do you think the courses students choose will also change?
Dr P Shankar: We have already become a technology-driven world, but there's going to be a greater emphasis on technology in the future. We are already discussing artificial intelligence, IoT, automation and big data. This will help ensure that the industry is more resilient to such pandemics and disasters in future.
Dr Neelam Upadhyay: I personally feel that one should learn from the strategies that the companies are adopting. They know that they will need manpower. They cannot really stop their hiring process. I will suggest students consider this pandemic as an opportunity. They should equip themselves with the skills that are required now. I don't think there will be changes in the courses offered but what will happen is the whole engineering programme might get restructured. People will be talking more about

interdisciplinary exercises. Earlier, this practice was noticed only in a few prestigious institutes.

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Engineering keeps updating and adding to its host of subjects offered like data science, robotics, AI, machine meaning etc in the past few years. How much of it is based on feedback from the industry?

PS: Now, the industry requires students to be job-ready on Day Zero and based on this, universities are preparing the students. But we need periodic updations of the curriculum as well. We have several experts from the industry onboard in our expert committees, and we're able to get the latest technology trends included in the curriculum.

NU: To be honest, in India, the curriculum was not revised for a long time. AICTE was following a very old curriculum. In fact, last year around March there was an article stating that 80 per cent of the engineering students are unemployable. It was based on a report from the National Employment Agency. Also, they were assessing the quality and they said the students are not capable of addressing any of the current trends or they are not skilled for that. In the past couple of years, things have changed a bit, after Make in India was launched by our Prime Minister, wherein he stressed upon the fact that we should improve the quality of students and include them in the Make in India project. It was only then that AICTE started proposing the changes. Only top institutes like the IITs introduced AI long back.

Industry needs the students to be job-ready from Day Zero

DR P SHANKAR
PRINCIPAL,
SCHOOL OF ENGINEERING

www.edexlive.com

Humanities have not evolved as fast or as much. Do you think, in a post-COVID world this might change?

NU: I completely agree with your point that humanities have been sidelined not only now but for the past two decades. Universities across the globe have seen a decline in the degrees awarded in humanities. One thing which we should understand is that humanities teach us how to be innovative and solve the problem creatively. It enforces critical thinking along with multiple other things. At Amrita, our mission and vision are that education should be for sustaining lives. It's a value-based education system. And based on that, our Chancellor, Amma, has taken the initiative of establishing Live-in Labs where people are sent to rural areas and interact with the rural community — find out what problems they have and the team of engineers, social workers, volunteers and students together come up with sustainable solutions for these problems. In support with this, there is something called the Ammachi Lab, which has also gained importance. They are developing technologies which are going to be applicable in rural areas and have completed many successful projects till now. These two particular projects are so popular with the students that even foreign students are coming and voluntarily participating in it. When you talk about artificial intelligence or robotics or you talk about data-driven science, it all has a lot of impact on our social life. You need to talk to people. You need to understand the society, their psychology and many other things. I think they have already realised that engineers without any knowledge of humanities are just going to be 'good' engineers, but they will not be the best. They are just good at doing their work, but that work will never be applicable to society or be sustainable.

The AICTE Chairman himself had said last year that the quality of students coming to study engineering has deteriorated over the years. Is this a school level issue or college level problem? How can we solve it?

PS: Schools, as well as curriculum, have to put greater emphasis on personality development, on skill development and the ability of the students to question to think creatively, to experiment on their own. What they study in school must be continued at the higher education level. We still have certain pockets of the good school curriculum, but when we speak on an average, when we look at the entire country, we can see that most areas have issues.

NU: There are multiple factors. Not only just the academic factor but the social factors are also there. Sometimes we have observed a good student in school is not performing well in college, that doesn't mean that we are questioning the school system. It could be absolutely another reason — the group he is interacting with, the environment of his school and the people around him — maybe he is not just able to fit in.

Students should learn from the strategies that the companies are adopting

DR NEELAM J UPADHYAY
ASST PROF, DEPT PHYSICS

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Is India still suffering from brain drain — our brightest still go abroad. Do you see this situation changing?
NU: Unfortunately yes, there are still many people who are going away. The USA still has better opportunities and people are opting for that. So yes, we are still facing the brain drain.

Do you see the situation changing anytime soon?
NU: This pandemic is not region-specific. It is global. So normalcy will also be restored globally. At this point, you might see that people are coming back to their place. They want to come back only because of the policies that have changed and once those are not in place or are made flexible they will prefer to stay where they are. I don't think they are coming back because their heart led them here. So as normalcy comes back, I think the trend will still be the same unless there are some major changes.

There is going to be a greater emphasis on tech in future

DR P SHANKAR
PRINCIPAL,
SCHOOL OF ENGINEERING

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We can recall the Hike Research Fellowship protests had highlighted the neglect towards the researchers. As researchers in India, do you feel we have enough opportunities to prosper here in India?

NU: India always had a lot of challenges, lots of opportunities along with talent, but we don't have an environment to nurture. And that is the difficulty. There are multiple factors to it. The way the curriculum is designed, the way the entire system is working, the flexibility is granted to a researcher — I suppose the government is working towards making it a smoother process. They are now coming up with many schemes, but it is only happening recently.

PS: Research is mostly passion-driven. The remuneration a research scholar receives now is far better that what we received when we joined the field. That should attract the best of brains into research. What has happened in the last few decades is that the research infrastructure has grown multifold now our country because of the stronger funding available to government agencies.

The US and other European countries were at this juncture 20 to 30 years ago. Do you think India can reach where they are now faster than they have?

NU: No, I think we are already on the path of this progress because the government is taking multiple initiatives. Recently, DST has come up with a new project called Supra wherein they are asking for new projects, which are directly implementable interdisciplinary projects and it is not an addendum to any existing projects. They'll also bring in the industry into the research areas to bring in that kind of development. They are promoting these kinds of projects and encouraging technicians from private institutes or entrepreneurs also to come up with projects for COVID-19.

Humanities teach us how to be innovative and solve problems creatively

DR NEELAM J UPADHYAY
ASST PROF, DEPT PHYSICS

www.edexlive.com

As researchers in India, what is the difference between working in a private institute vis-a-vis a government organisation?

PS: The government institutes have better support in terms of financial aid and resources while private institutions were still at the end of the day depending on government funding agencies and balance of sheet reports. But having said that the scenario today in our country is definitely improving.

NU: In a private university getting the technical staff for additional manpower might sometimes get difficult, but not all the time. Some private universities are very well established and they have a very much dedicated support for research. They are encouraging it but in other private universities, there are certain difficulties. But at the same time IITs have some other difficulties. The point being that the difficulties are not the same and the difficulty levels are different but they exist on both sides. Maybe in an IIT, those difficulties are addressed probably much faster than it will be done in a private system and in certain aspects our private system has more liberty than the IITs.