June 2017

"The Real Concern Is To Ensure High Quality Of Education"

All India Council for Technical Education (AICTE) chairman Anil Sahasrabudhe tells why India needs to focus on 'quality-degree education'

*Anil Sahasrabudhe, chairman, All India Council for Technical Education (AICTE), tells **Bula Devi** that India needs to focus on better-quality degree education in engineering, while not ignoring the ITIs and polytechnics.*

Experts believe our engineering institutes are producing sub-standard engineers and there is a dearth of good engineers...

To a certain extent it is true. While a large number of students enter the system, not all are found to be employable by some industry bodies. It is not true that all students graduating are not up to the mark. Moreover, all colleges are not of the same level—some are quite good, some are on the

fringe and need assistance to become better, while others are very poor in quality. It is students from these poor-quality colleges who find it difficult to get employment.

What are you doing to tackle sub-standard institutions?

On the basis of computer-generated list of institutions (through random number generation), we conducted surprise INSpections in 311 colleges recently. Colleges that were found to be good are allowed to function with full approved seats. Those found wanting in key parameters—faculty, infrastructure, labs, facilities—were penalised, either by reducing the number of seats or calling off admissions for a year and, in worse cases, closure. This exercise covered three per cent of the more than 10,500 such institutions. We have also warned institutions with more than 70 per cent vacancies for consecutive years may face closure from next year.

We get to see more engineers engaged in sales and marketing than going to shop floors, while polytechnic diploma holders are mostly doing the pure technical work. Isn't something wrong there?

This is partly a worrisome fact, but I wouldn't agree fully. Are there enough jobs on the shop floor? No. The number of students with engineering degrees is far more than the jobs available on the shop floor or in core engineering areas. So, if some trained engineers go for marketing, especially in engineering products, what is wrong with it? They are the best people to explain to the industries about the specifications and properties of a product. Some also undertake product-servicing jobs. Some go in for R&D or product development. Unfortunately, some go for bank jobs or non-engineering sales jobs. Of course, lack of job opportunities in their areas of interest is a major factor for them to go for such jobs. But, in most cases, they are doing jobs related to their background. For instance, many go to the IT and services sectors. If they are coding for various engineering applications, there is no problem because one needs engineering domain knowledge for coding.

Does this have to do with shortage of jobs?

Yes, this is the reason why AICTE is encouraging students to launch startups and not depend on government or corporate jobs alone. It can be in software, hardware, IT industry, services sector and so on.

It is said fresh graduates mostly have insufficient technical information and lack client-handling skills. As course correction, isn't there a need to revisit the syllabus and bring in more exposure and physical engagements with the industry?

Absolutely. Last month, we had a meeting and a 10-point agenda was drawn in which curriculum revision was the first priority. New syllabi will be implemented from this semester. Committees have been set up, comprising professors from IITs, industries and so on, and the syllabi will be prepared in such a manner that it caters to today's demands, while looking at future needs as well. It will be a model curriculum. Individual institutes or universities have the freedom to adopt this model curriculum and tweak it as per local needs. Internship in industries will be made mandatory so that students get exposed to actual industry practices. They will pick up threads

from there and that will open the doors of employment for them. People from industry will also take classes for students as adjunct faculties. These measures won't show results overnight, but will yield positive results after a couple of years. The deadline set for the new syllabus is June 30, so that it can be implemented from the forthcoming academic year.

If we have to prioritise, should there be more polytechnic institutions, ITIs or engineering colleges?

We need all of them because manpower is needed in all sectors and at all levels. However, among the three, more ITI-background people are required in the industry, followed by polytechnic diploma holders and then engineering degree holders. The real concern is the quality of education, which is suffering in many institutions. This, indeed, is a worrying factor and hence that is where we need to concentrate, check poor-quality institutes, support well-performing ones and mentor those in the middle level. If quality engineers are produced, they will not only get placed in India, but in many other countries where there is a demand as their population is ageing.

their portals, says Das, who believes this framework should enable students to enter, but not limit their options at the end. While ensuring market-ready skills are imparted to those who would take up main positions on the shop floor and retail, there must also be options available for those who wish to pursue further education and enhance their opportunities before joining the workforce.

Nine years ago, Pallav Kumar Singh graduated in aerospace engineering from SRM University. In college, he had realised 80 per cent of the students were not there out of passion for the subject and their perspectives on engineering were shallow. Pallav, who was keen in getting a job in his core area, could not succeed and then sat for the civil services examination. He was fascinated by small and cottage industry policyadvocacy and today he has his own venture and works in think-tank in the sector.

Hemant Gopinath, who finished mechanical engineering at TKM College of Engineering in Kerala, did a 25-month stint with L&T Construction Limited in his core area through campus - placement. But, he soon realised that what he was doing in the company could also be done by a diploma holder. Not very enthusiastic about gaining deeper knowledge in engineering, Gopinath decided to pursue what was closer to his heart—managerial-supervisory work. So he decided to do MBA, which could open up more avenues, whereas engineering would have restricted him to one stream only.

 "It is not true that engineering graduates are all below standard because alumni from my college are working in ISRO, DRDO and so on," says Gopinath. "But, over the years, engineering colleges have mushroomed that don't follow quality standards. Besides, undergraduation in engineering is more book-based knowledge, whereas ITI and polytechnic students are more exposed to hands-on roles."

Datta Kuvalekar, director of Forbes Marshall in Pune, agrees that ITI polytechnic diploma holders are equipped with direct "doing" skills, which add direct value to the manufacturing process, and are, therefore, needed by industry to run machines and equipment. But he feels engineers too tend to look down upon these assignments as being labour-oriented. Sales and marketing jobs are considered "glamorous" and are known to boost career prospects.

"Sales and marketing job roles have a more attractive image, while manufacturing jobs are seen as being 'low on returns'. That needs to be tackled," he says. "Many engineers also tended to

turn to IT many years ago, during the IT boom, for higher salaries and glamorous exposure to foreign lands."

Another factor is that there is no compulsory long-term internship in industries for engineering graduates. According to a former IIT professor, engineering students have a limited exposure to real life and internships are mostly on paper. While industries are perhaps not enthused by the idea of apprenticeship as the apprentices may move on to other jobs elsewhere, many students too find the six-week training lacklustre as it usually has few linkages with what they have been taught.

"Industries manage with diploma holders as there is a dearth of good engineers," says the VC of Gujarat Technical University.

How do we rectify this? Gujarat Technical University vice-chancellor Navin Seth is emphatic that internship in various industries should be made compulsory for engineering students, on the lines of the mandatory one-year hospital internship for medical students. Agreeing with the IIT professor that the internships today are mostly "symbolic", Seth says, "Unfortunately, there is no real exposure, no hands-on training for the students."

While industries require engineering graduates who can serve their purpose, they are managing with diploma holders since there is a void of good engineers. "Industries require engineering graduates who can serve their purpose, but are managing with diploma holders as there is a dearth of good engineers. Polytechnic diploma holders and ITI students are technicians more than anything else," says Seth.

Another reason many point out for India not producing enough qualified engineers is the basic fault of having multiple-choice questions. "It is bad for students as they are not able to think logically. In multiple-choice questions, marks are given for ticking the correct response, which need not be the result of correct reasoning," says Prof K.D. Joshi, formerly with IIT Bombay, who adds that countries such as France follow multiple layers of imparting engineering course.

There are also those like Sunil Kant Munjal, chairman, Hero Corporate Service, and chancellor of BML Munjal University, who feel India needs a thoughtful regulatory system in higher education that monitors the quality and output of engineering with a relatively hands-off approach.

Ultimately, what is needed is not either/or, but all. India needs qualified engineering graduates as well as ITI and polytechnic diploma holders because if the former can meet the need for intellectual jobs in R&D, the latter may be better suited for jobs in manufacturing.