Printed from
THE ECONOMIC TIMES

Where is the faculty for new IITs?

23 Jul, 2008, 0000 hrs IST,Pankaj Jalote,

In the excitement about the announcement of six new IITs in one go, few questions are being asked about how these new institutes will be able to reach the standards for which the IIT brand is known.

An educational institute's stature is determined by the quality of its students, faculty and infrastructure. Thankfully, without anyone doing anything, quality of students for an IIT is guaranteed. The quality of infrastructure can be ensured, to an extent, by suitable investment (it is another matter that no clarity is there about what investments the government is willing to make for these new IITs. It is estimated that each IIT will take about Rs 500 to 1,000 crore to set up.

If we assume that this will be spread over six years, the government will need to put up Rs 500 to 1,000 crore every year.) The limiting factor in setting up these institutes will undoubtedly be the faculty.

Let us get a sense of the numbers involved. For an IIT to become self-sustaining, a faculty of about 100 will be needed. Assuming that each IIT will want to reach this target in about two to three years, about 200 to 300 new faculty members will be needed by these new IITs each year, mostly in engineering. In addition, each existing IIT will also want to recruit about as many (each IIT recruits about 30 to 50 new faculty a year, which just about keeps up with the losses due to retirement, moves, etc). As a PhD is necessary for a faculty position in an IIT, we therefore need about 500 fresh PhDs in engineering every year to provide the faculty for the IITs.

Let us look at the supply side. An IIT produces about 100 PhDs a year in engineering, which means a total of about 600 PhDs are being produced by the top institutes every year. More than half of these will join lucrative careers in industry or go overseas (the actual percentage is likely to be higher). Of the remaining, many will not be acceptable to IITs for faculty positions (as not only a PhD is required, the quality of work and past education record also must be good.) So, even after stretching the limits, there will be less than 100 suitable candidates available for these 600 faculty positions!

Clearly, the problem is not solvable by resources within the country. There is, however, a large pool of PhDs in the US (and elsewhere) of Indian origin. According to one report, the number of Indians who got PhDs in the US in computer science (CS) in a year was 275 (out of about 1,000), which, incidentally, is about 10 times the number of PhDs produced in India in CS. The number of PhDs in other disciplines would be of similar order — according to a NSF report about 1,500 Indians were awarded PhD in science and technology in 2006. If we consider the graduates of the last few years, a thousand-strong pool of Indian PhDs exists in the US in each discipline.

It is this pool of resource that is our only visible hope for meeting the faculty crunch — if only we can attract some of them back. This approach has been used successfully by Taiwan, which in its growth years, relied heavily on expatriates to return for setting up industry and for R&D. More recently, Singapore Management

University seems to have used it very effectively. The industry in India is also using this model — for most IT multinationals in India, many of the top positions are occupied by people who were attracted to come back.

Attracting people from this pool to join new IITs as faculty will require specially focused strategies. There are two things that must be done, if there is to be some hope of attracting these people back.

First is to ensure that the location of each new IIT is in a city which is viewed as attractive for living by these highly educated people, who have multiple choices for their employment. It will be extremely hard to attract people to cities which do not have good air connectivity or education opportunities for children or job opportunities for spouses. This will be the single biggest factor that will make or break the new IIT.

The other is to make the overall compensation package for faculty more attractive. Besides providing high quality on-campus accommodation to ensure that the physical quality of living does not have to be compromised, the financial compensation has to be improved substantially. For the financial package, the new IITs have an edge over existing ones as, being unencumbered by old rules, they can create special schemes. As the salary scales cannot be changed, some out-of-the-box thinking is needed.

For example, a new IIT can offer “founding faculty fellowships” for five to ten years to the first 100 faculty members who join the new IIT. These fellowships can be built through grants, loans, or private or corporate donations. Through these, the total compensation can be taken to about Rs 10 lakh for a new faculty, thereby making the faculty job almost as attractive as the R&D jobs in industry.

In addition to attracting relatively fresh PhDs for entry level faculty positions, senior faculty from overseas can be invited to join (permanently or for a few years on leave) the new IITs as head, deans, etc. If provided with suitable amenities and compensation, there will be a few good people who will be willing to take the challenge of building a new institute or a new department. These people can be invaluable due to their experience and connections and can help attract younger people to return.

If something like this is not done to attract good quality faculty, the result is likely to be that these new institutes, in desperation, will recruit average faculty. And if an institute goes this route, it will fall into the trap most academic institutions in India are in and build foundations that are fundamentally weak. The damage that can be caused is extremely hard, if not impossible, to undo. A hired faculty will be there for the next 30 years, and average faculty will attract only average faculty in future — all well qualified people want to join an organisation with top quality peers.

Of course, the long-term solution to this problem, which will only worsen with time, is to dramatically raise the PhD production in India, an issue that needs to be taken up on a war footing.

(The author is a Chair Professor in computer science in IIT Delhi. Views are personal.)