



Engineering Degrees: Affordable, Accessible

In the last issue, I analysed the price of providing engineering education and looked at some of the areas in which expenditure was being wasted, such as in paying sub-standard faculty and bribes to avoid fee regulation. In this follow-up, I share a range of methods governments, promoters and the management of academic institutions could use to make access to quality engineering education more affordable.

Help from Authorities

The state can help reduce the initial cost of setting up a college by offering land at a lower cost. The promoter can return the gesture by starting the institute through a gift, used to build infrastructure and/or set up an endowment whose interest income will add to the resources of the college.

In terms of recurring costs, the biggest component is faculty salary. For a teaching-only institution, a faculty-student ratio of 1 to 15 is a luxury. AICTE should immediately change it to 1 to 25. This will legalise the status quo at a vast number of existing colleges and enable honest players to enter the sector. Since this ratio is not adequate for research programmes, AICTE could look at a model where the faculty size is determined separately by undergraduate

and postgraduate students. It could be 1 to 25 for the former and 1 to 10 for the latter.

The council should also continue to upgrade its infrastructure requirements. For example, there is no need for a minimum number of PCs in an era when most students own a laptop. Library sizes can be reduced since content is increasingly available digitally over the campus LAN in one's hostel room. Many of these requirements add to cost, without adding to quality.

AICTE could also look at allowing bigger institutions. Currently, most of our colleges have a student strength of just 2,000 or fewer. In a country with such a poor gross enrolment ratio that we are keen to double in the next five years, we must look at colleges with student populations of at least 5,000 to 10,000. This will allow economies of scale, particularly when it comes to infrastructure utilisation.

To give an example, in a large class, half the students can have lectures in the morning and labs in the afternoon, and the other half can do the reverse, thereby doubling the usage of labs and lecture halls. AICTE has made a start by allowing an evening batch to attend colleges, but it needs to go far beyond this.

Alternate Revenue Sources

Technical universities should also take a close look at the curriculum. Teaching six to seven courses a semester is counter-productive because students cannot learn so much at one time. This set-up also increases faculty costs. If curricula have only five courses per semester, faculty costs will go down, and learning will improve.

Currently, the small number of research projects that faculty undertakes is funded out of tuition income. Faculty members should be strongly encouraged to write project proposals to government funding agencies like the Department of Science and Technology, Department of Information Technology and the like, and also to industry.

Another revenue source — at least for institutions providing higher-quality education — is workshops and short-term courses. Most institutions already run these for their students and faculty. If marketed properly, they can attract a lot of high-paying industry players. Management institutes already earn significant revenue this way, and there's no reason engineering colleges cannot do the same.

Sharing facilities with outsiders is one more idea. A computer training institute could use the computing labs in the evening when there is less student demand. Lecture halls can be shared outside the college's normal lecture hours. Empty guest house rooms could be rented to outsiders. Students' primary healthcare room could double up as a doctor's clinic for non-students outside hours.

On-campus businesses like bookstores, photocopying services and canteens need not be given space for free or low rent. Higher charges for these businesses are a politically acceptable way of getting students to pay more for the costs they incurred.

One source of revenue that Indian institutions seem reluctant to tap are philanthropists, foundations and alumni. And, of course, government can help by offering tax incentives for these. Currently, those who donate to educational institutes receive an income tax rebate on 50% of the donation (except institutes of national importance like IITs, which attract a 100% rebate). The new budget proposes that companies that give money to educational institutes for research can deduct 200% of the expense from their income. This 200% rebate should be given on contributions to teaching as well.

Variable Pay Mechanism

Variable payment mechanisms that give students from financially weaker sections access to engineering courses could be introduced, with higher charges for those who are better able to afford

Administrative overhead can be reduced with good campus management. Internet-based conference solutions can obviate the need to bring in visiting faculty. Instead, staff can deliver from offices

them. One simple idea is to have lower fees for students from the same state and higher fees for students from outside. Typically, students from financially weak backgrounds study in their respective states, and such an arrangement would suit state governments.

Also, governments might allow an increase in average tuition if colleges offer scholarships to students from weaker financial backgrounds.

To borrow a trick from the healthcare industry, there could be different kinds of hostel rooms, with someone taking up a higher-cost hostel room being charged a higher fee.

Technology should also be used to bring down costs. In particular, the administrative overhead can be reduced with a good campus management system. Internet-based conferencing solutions can obviate the need to bring visiting faculty all the time. Instead, staff can deliver seminars sitting in their offices. Meanwhile, cameras at strategic locations can reduce the number of security guards needed.

Finally, after all the cost savings, there would still be students who could not afford engineering education. Getting a loan must be made easier. To enable and encourage students to go for MTech and PhD programmes, a portion of the loan should be waived when students delay earning by going for research programmes.

If all stakeholders are serious about improving the quality of engineering education, the goal is achievable, and without restricting access. **EDU**

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DHEERAJ SANGHI

Dr Sanghi is the former director of Laxmi Narayan Mittal Institute of Information Technology, Jaipur. He is a professor of computer science at IIT, Kanpur. Dr Sanghi has a B.Tech in computer science from IIT Kanpur and an MS and a PhD from University of Maryland, USA. He can be reached at dheeraj.sanghi@edu-leaders.com