

NASSCOM News Room

As Demand for Engineers Grows, Experts Say India Has Only 10 To 30 Percent of The Qualified Instructors it Needs

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In a sign of growing pains within India's high-tech economy, the government last week slashed the intake capacity of engineering schools by more than 25,000 seats across the country's private university system.

A dramatic shortage of engineering teachers with doctoral degrees prompted the cuts. Various experts estimate that India has only 10 to 30 percent of the qualified instructors it needs.

The shortfall is a product of India's economic success story - as well as a peril to its future expansion. High salaries and abundant jobs are attracting more students to engineering, and at the same time wooing teachers away from classrooms and into the office parks that now dot many of India's southern cities.

"The gap has to be filled very shortly," says P. Devadas Manoharan, a civil engineering professor in Madras. "Otherwise, the quality of education will come down."

While the jury is still out on the future implications of such engineering education problems for India's booming IT sector, questions have already been raised about the quality of Indian graduates in general.

A Merrill Lynch report in February from its Bombay office cites a study by McKinsey & Company, a global consultancy, that suggests 75-80 percent of India's graduates are not employable in the IT-enabled services industry, which could lead to a qualified labor shortage.

The cutting of engineering seats June 7 was ordered by the All India Council for Technical Education (AICTE). This government body was established in 1987 to oversee the quality of technical education in India at a time when private engineering schools were coming up to meet the growing demand for such training.

Private engineering institutions have spawned all over India because the government has not had the funds to increase significantly the number of engineering schools it runs. In 1970, India had a total of 139 engineering institutions, and only four of these were private.

Today, India has nearly 1,400 engineering institutions; only about 200 belong to the government. This explosion in higher education has allowed many more Indians to pursue an engineering degree.

Tushar K. Nath, director of AICTE's southern regional office in Madras, says that seats were so few 20 years ago that only 1 percent of aspiring students got in; today, nearly 70 percent manage to find places.

But the wider availability of engineering training has come with a dilution of quality. "We had gone for extensive inspections. Many institutions could not satisfy standards," Mr. Nath says.

Crowded Classrooms

Overcrowded classrooms are the chief problem. Defaulting institutions were given until July 7 to meet the required teacher-to-student ratio of 1:15. Advanced degree holders are difficult to find, so schools are recruiting more faculty with bachelor's level engineering qualifications.

According to AICTE sources in New Delhi, many schools want the seats that they lost back, after recruiting teachers with bachelor's level qualifications to meet the required teacher-to-student ratio.

Adinarayana Kalanidhi, a former vice-chancellor of a government university in Tamil Nadu, welcomes AICTE's regulatory function, but says its approach to solving the problem is misguided.

"If an industry is [faltering], the government comes forward to support it. But when a private engineering college has problems, it's going with a police stick to beat it up."

Deprived of student fees by mandated cuts in seats, private institutions founder in financial troubles and close down. "So the good intention with which you permitted them to participate in education is lost," says Mr. Kalanidhi.

Prior to the opening up of India's economy in 1992, industry jobs were not as plentiful, so students pursued advanced degrees to secure teaching jobs, which commanded respect. But vigorous job growth in recent years has left few takers.

"About 20 years ago, when I came into teaching, the salary for a university teacher was on a par with the salary outside," says Mr. Manoharan.

A Matter of Incentives

Today, a fresh engineering graduate can get paid twice as much as an assistant professor who has spent a minimum of six extra years and a hefty Rs. 300,000 to 400,000 (\$6,896 to \$9,195) more to earn his master's degree and PhD.

Kalanidhi decries the lack of innovative mechanisms to motivate graduates to become engineering teachers. He describes a program he helped start in Punjab that allowed lecturers with only a bachelor's degree to attend master's programs part-time.

He holds up a teaching research associate (TRA) program - similar to teaching assistantships in the US - he implemented at a government university in Tamil Nadu as another model.

Instead of hiring new faculty, he assigned each TRA two undergraduate courses to teach. It carried a monthly stipend of Rs. 8,000 (\$186), which helped offset the high cost of the PhD program.

Nath suggests that private colleges sponsor their teachers for advanced degrees in foreign countries, which have far more graduate engineering programs than India, and then bring them back to teach. He also urges high-tech businesses to set up endowments or grants to benefit engineering institutions in India.