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## **Engineering an Indian success**

Over the last month, as the new American academic year has begun, some 600,000 students from all over the world, including about 70,000 from India, have winged their way to the United States for higher studies. From all accounts, the overall number of foreign admissions has continued to climb even post-9/11 amid indications of fewer students from countries on the U.S terrorist radar screen. Indians seem to have had no problems despite reports that Washington has tightened scrutiny of students wanting to learn in “sensitive” areas such as nuclear studies, robotics, and biomedical engineering.

More than 70 per cent of Indian students come to the U.S to study engineering and science. In the past, a majority opted to stay back. This year’s stream is arriving at a time of increasing job loss and growing resentment about it, though mercifully, it has not so far been directed against foreigners. But given their growing numbers in engineering and science, Indians and Chinese could be prime targets.

According to recent studies, around 40 per cent of engineering, mathematics, and computer science graduates are international students, a majority from India and China. To get a sense of this, go to the website of the Stanford University Computer Sciences School (<http://cs.stanford.edu/People/phD.html>). Of the 170 Ph.D students listed there, nearly half are foreigners, including 28 Indians. It’s the same story in other well known schools such as MIT, Carnegie Mellon, Purdue etc.

The boom in foreign students provides some answers to the jobs crisis in the US. For all the hand-wringing going on, the US simply does not produce enough home-grown science and engineering graduates. The crisis begins at the high school level itself, where Americans have over the years zoned out of math and science (according to one study, 40 per cent of math classes in

public schools are taught by unqualified teachers; they are now importing math teachers from India).

The National Science Foundation estimated in 2000 that 12 per cent of US science and engineering degree holders were of Indian origin and 9 per cent were Chinese, although together they constitute only around 2 per cent of the US population. So despite their superb universities, there are far less American takers for S&E seats and jobs than there ought to be. Universities too bank on foreign students both for the quality and the money they bring. Indians students are particularly coveted. Deans and faculty members of several schools have told this columnist that they are simply the best.

Some of the ‘desi’ success owes to the rich Indian tradition in engineering studies going beyond the IITs. India’s oldest engineering school, the IIT (formerly REC) in Rourkee (established 1848) is as hoary as the Rensaellaer Polytechnic, America’s oldest, which was founded in 1825 during the Ulysses Grant presidency. The Guindy Engineering College in Chennai derives from an industrial school attached to a gun carriage factory of 1842 vintage. There are many engineering schools in India going back a century. India’s founding fathers began working on the IIT idea as far back as the 1920s, long before Independence, although they were set up only in the 1950s.

At last count, the Indian Human Resources Ministry put the number of engineering schools in India at 1200, cranking out 360,000 engineers annually. Some of the brightest come here, study, teach, work for topnotch companies, found new ones, and burnish the Indian reputation. Every indication is they will continue to come here in large numbers. If the US puts the squeeze on them, they will return to India and do equally well. It’s a win-win situation.

