

# Indian universities ordered to cut length of science courses

*Posted on behalf of T. V. Padma*

Thousands of students and staff at some of India's leading universities, including the prestigious Indian Institute of Science (IISc), Bangalore, have been left in turmoil after the institutions were ordered to cut the length of their undergraduate science courses to fall in line with national policy.

The IISc was last week told by Smriti Irani, the new minister for Human Resource Development, that it must immediately shorten all ongoing and planned four-year courses by a year. The decision came just weeks after Delhi University, one of India's biggest, was told it must cancel its four-year programmes, which were only introduced last year. Several private universities have also been told to roll back their undergraduate course length.

The move has caused significant confusion and upheaval. The IISc attempted to agree a compromise deal with the education authorities that would see it give undergraduates the option of leaving its science courses with a non-honours degree after three years; and rename the four-year course. But this has now caused uproar among students, who accuse the IISc management of bowing to government pressure.

Delhi University is complying with the measure, leaving it struggling to reconfigure courses that have already started while rescheduling those due to begin this year. As many as 25,000 students and staff will be affected.

“Such moves could turn the brightest students of India away from a science career; and threaten innovation in higher education, which is in bad need of an overhaul,” says Vishwesa Guttal, assistant professor at IISc's Centre for Ecological Sciences.

Traditionally, most Indian universities follow a three-year undergraduate programme for both science and arts, modelled on the UK system. But in 2008, three top science academies, the Indian Academy of Sciences in Bangalore, Indian National Science Academy in Delhi and National Academy of Sciences in Allahabad, prepared a position paper on higher education in science, in which they recommended a four-year programme. Their report highlighted some of the major drawbacks in undergraduate science education in India, including compartmentalised teaching of some sub-disciplines, inefficient admissions systems and repetition of topics at BSc and MSc levels. Other deficiencies included poor laboratory facilities, little exposure to research methodologies and limited options for movement between science and technology streams.

In recent years some institutions, including the Indian Institute of Technology, Kanpur (IIT) and several private universities, have introduced longer courses. The IISc began offering its own four-year undergraduate science programmes in 2011, with a focus-placed on equipping students with research

skills in the final year, and building its brand. Some courses at the Indian Institutes of Science Education and Research (IISERs) also adopted four-year programmes.

And in 2013, Dinesh Singh, Delhi University's vice-chancellor, pushed through a four-year undergraduate programme to replace the three-year one despite strong resistance from teachers and students who were unprepared for the change. It was designed to better prepare students for academic and job market requirements, as well as bring courses more in line with those offered in the United States.

But in June, following the swearing in of a new government under prime minister Narendra Modi, Irani rolled back Delhi University's four-year programme. The University Grants Commission (UGC) said it "was not in consonance" with the national policy on education. This left thousands of students who enrolled in 2013 in the lurch, and delayed admissions for 2014 as the university struggled to accommodate the changes.

Then, on 6 August, Irani told the Indian Parliament that the government planned to ask the IISc and two private universities to discontinue their four-year undergraduate science programmes. The statement sent shockwaves through the IIS campus, and director Anurag Kumar constituted a committee to look into how the institution could "align our programme with the UGC guidelines".

Kumar told *Nature* that the institute would like to retain the four-year programme with its unique strong research component. "The novelty of the IISc four-year programme is that it is creating a small number of researchers trained by some of the top scientists in the country," he says.

It is understood that the institute has now agreed a compromise deal that would enable students to leave IISc courses after three years with a Bachelor of Science degree, or continue to study for another year and gain a new Bachelor of Science (research) degree. But students and a section of faculty are unhappy at what they see as the institute 'caving in' to the UGC's demands.

There is a sharp divide at Delhi University over the benefits of a four-year programme. Shobhit Mahajan, professor at Delhi University's faculty of physics, says "there were problems from the word go" with the manner of implementing the change to a four-year system. "It was hare-brained and not based on ground realities of students, teachers and infrastructure." Besides, adds Mahajan, the main stakeholders – the teachers who were going to teach the new course – were left out of the discussions and decisions.

Tapasya Srivastava, assistant professor at the department of genetics at the University of Delhi, says that while the four-year undergraduate programme may be well established in the US and other countries, "its success in India would require structural changes in not only the Master's [degrees] but also the preceding school programme. The rudimentary foundation courses seem to make a mockery of the intensive school coursework that a student is put through."

But others say the current undergraduate system needed an overhaul. Deepak Pental, former vice-chancellor of Delhi University and one of India’s top genetically modified crop scientists, believes a “radical shift” is required. “We have had a one-track system for the past 30 years and were not creating inter-disciplinary studies,” he says. But with the “mucked up” implementation of a four-year programme in Delhi University, “we have lost an opportunity to improve our undergraduate programme”, he adds.