

## Hyderabad, Ropar lead new IITs in research 'impact', Mandi trails

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As the eight new IITs set up over the past five years struggle with inadequate infrastructure and a lack of quality faculty, two of the new institutes — in Hyderabad and Ropar — have surged ahead in one key indicator: quality of research, as evidenced by publication in esteemed journals, and the number and quality of citations thereafter.

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A recent journal citation assessment commissioned by the new IITs through a reputed agency had IIT Hyderabad and IIT Ropar scoring 9 on the h-index, while the other six — Gandhinagar, Bhubaneswar, Patna, Indore, Jodhpur and Mandi — scored between 2 and 5.

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Data up to September 2013 show IIT Mandi and IIT Jodhpur doing the worst, with h-indices of 2 and 3 respectively.

The h-index, named after Argentine American physicist Jorge E Hirsch, quantifies an individual's or institution's scientific research impact on the basis of the number of publications, and the number of citations per publication. Hirsch said the index provided an "estimate

of the importance, significance and broad impact of a scientist's cumulative research contributions".

The older IITs — set up in the 1960s — have an h-index of 40 and above, with 600-1,000 annual citations. A study in 2009 found Indian Institute of Science, Bangalore, to have the highest h-index in India of 79. IIT Kanpur scored 58, IIT Madras 46, BITS Pilani 25 and Delhi College of Engineering 12.

According to the latest data, IIT Ropar leads the new IITs pack with an average citation per paper (ACPP) of 2.55. Hyderabad is next with an ACPP score of 1.95, Gandhinagar has 1.67 and Bhubaneswar 1.49.

IIT Hyderabad's research has been cited 535 times, IIT Ropar 362 times, Gandhinagar 105, Patna 97, Indore 87, Bhubaneswar 85, Jodhpur 41, and IIT Mandi 19 times.

Asked for a comment, IIT Mandi director Prof T A Gonslaves said he had not seen the journal citation report, but stressed that research and publication were focus areas for the new IIT.

"Research is a definite priority area and we are working on it closely. Our faculty is focusing strongly on this aspect with increasing lists of publications," Gonsalves said.

Prof M K Surappa, director, IIT Ropar, said the institute had been investing in building research infrastructure and environment.

"We started with young faculty and motivated them to take up research, permitted departments to buy whatever equipment they needed through seed grants, and the administration helped wherever it could. I think the new IITs have done rather well on research indices vis a vis the old ones; while the latter focused on research more than a decade after they came up, the new IITs are working on it right from the start," Surappa said.

Shortage of faculty is a major factor that affects an institute's citation record. IIT Hyderabad has 99 faculty members, 41 more than at IIT Ropar. Jodhpur and Mandi have the most vacancies. The new IITs, who have on average only half the number of faculty that they actually need, have been focusing on post-doctoral programmes so that they are able to draw future faculty from this pool.