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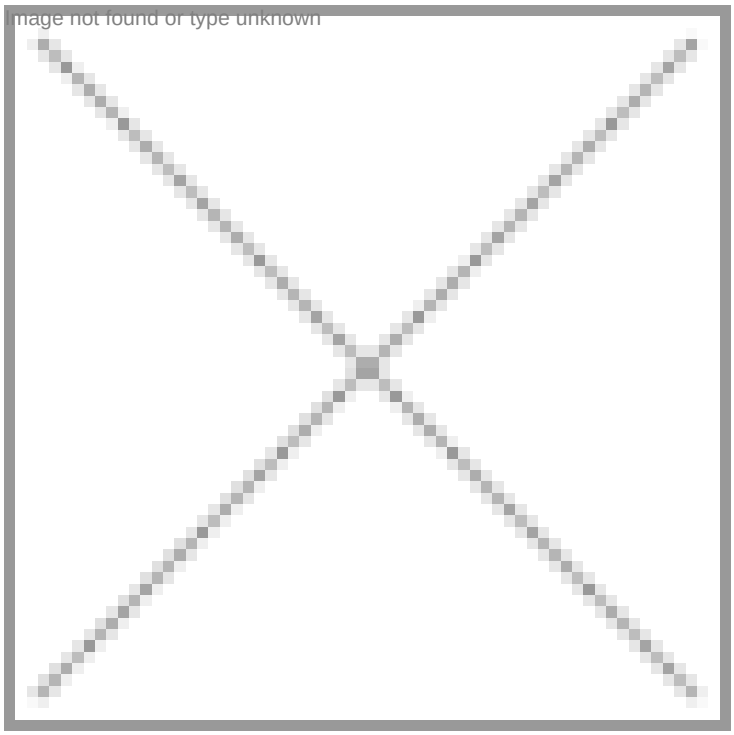
Top Public Institutes in India

10 January 2007 | News



Top Public Institutes in India

Amongst all institutes and colleges, which are imparting education at the BTech, MTech M.Sc or PhD level in biotech, Rajiv Gandhi Center for Biotechnology (RGCB), Trivandrum, emerges as the best top-ranked institution in the country. It is followed by University of Hyderabad, Hyderabad in the second position, National Dairy Research Institute (NDRI), Karnal in the third position, Institute of Chemical Technology, Mumbai in the fourth and IIT, New Delhi in the fifth position. While University of Hyderabad, Institute of Chemical Technology, and IIT, New Delhi have been in the Top 5 ranks in the previous year's survey, RGCB and NDRI are new entrants.

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Rank 2

The School of Life Sciences at University of Hyderabad is a teaching and research institute with a multidisciplinary approach. Prof. P Reddanna, coordinator, School of Life Sciences, University of Hyderabad, said, "The teaching program at the School are designed in a such a manner to provide the basic chemical and physical aspects of life as well as to impart information about the new frontier areas of life sciences." The School offers courses in MSc Biotechnology; M Sc Animal Biotechnology; M Sc Plant Biotechnology; M Tech Medical Biotechnology and PG Diploma in Bioinformatics. "The total intake across various programs is around 60 students and with full time faculty strength of 29 and with 25 of them having over five years experience and are PhDs. The School spends about Rs 1.10 crore on infrastructure spend as defined by BioSpectrum," said Prof Reddanna.

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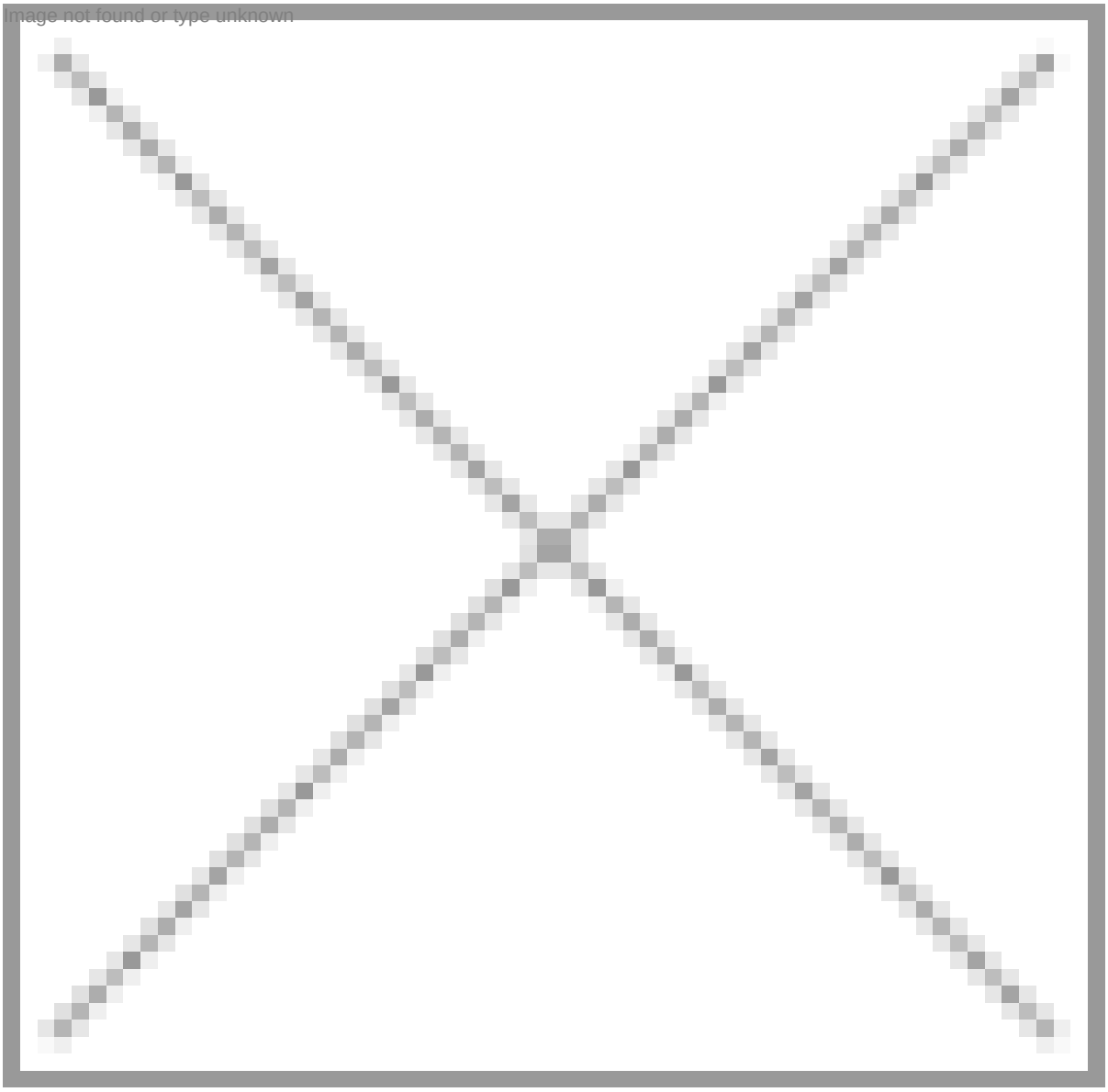

Rank 3

This year's third ranked institute is the National Dairy Research Institute (NDRI), Karnal. "NDRI is the country's premier research institute. Activities on animal biotechnology research at NDRI were initiated during the Mid Eighties under a UNDP 'Center of Excellence programme on Biotechnology'. Under this program, infrastructure facilities for research in Biotechnology were developed at different divisions of the Institute. A Masters education program in animal biotechnology was initiated at NDRI in 1987. During the same year, on recommendation of the National Task Force of the Department of Biotechnology (DBT), a National Project on Embryo Transfer Technology (ETT) was initiated at NDRI, which was also supported by ICAR/USAID bilateral co-operation in its initial stages. This formed the basis for the establishment of a state-of-the-art Embryo Biotechnology Centre at NDRI having specialized laboratories for conducting advanced research on various aspects of embryo biotechnologies. Very intensive research on conducting embryo biotechnology research at NDRI resulted into evolving and fine- tuning of several embryo related technologies aiming at multiplication of superior germplasm. Works have been carried out on cryopreservation protocol for oocytes and embryos, ovum pick-up technique in buffalo, designing in vitro fertility evaluation tests and immuno-nutralization of inhibin leading to fertility augmentation. The centre is involved in conducting research on areas of high-end embryo biotechniques like transgenesis, somatic cell cloning and embryonic stem cell production. The center is also included in the 'Buffalo Gene Mapping' initiative of DBT and niche area of research on buffalo production and reproduction genomics by ICAR. The department has 10 well-experienced faculty members, each of who has over five years of experience and we invest close to Rs 50 crore per year on the infrastructure. The ongoing research projects are being funded by ICAR and several other national and international funding agencies to a tune of Rs 4 crore," pointed Dr SL Goswami, joint director (research), NDRI, Karnal.

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Rank 4

Institute of Chemical Technology (ICT) Mumbai, the fourth ranked public institute, earlier known as Department of Foods & Drugs, offers MTech (Bioprocess Technology) as an interdisciplinary course. The total intake for this course, with DBT fellowship seats as well as industry sponsored seats, is 30. According to Prof. SS Lele, coordinator, bioprocess technology, ICT, "There are 19 fulltime faculty members and several distinguished persons from industry and other institutes visit it imparted training to its students. We started MSc (Biotechnology) and PhD (Sci) Biotechnology courses in 2006 with an

intake of three and five students respectively. And our yearly investment is over Rs 1.1 crore on infrastructure and we have Rs 7 crore worth of government and industry sponsored projects in hand." The major research interests include carbohydrate chemistry and technology with focus on Indian traditional foods; fermentation technology with focus on enzymes, plant cell culture, nutraceuticals and GM foods and food microbiology related to quality, safety and application of new technology.

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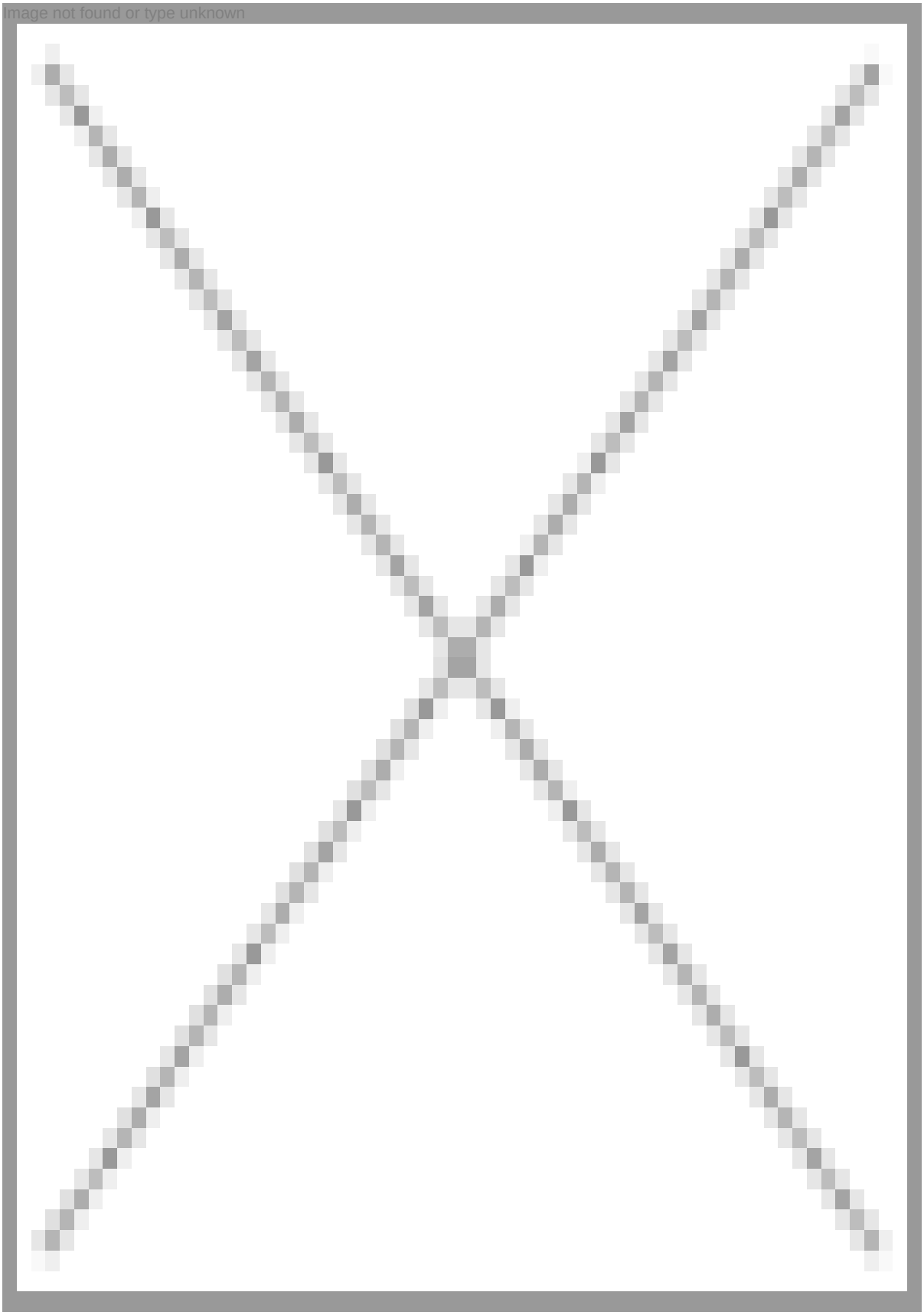

Rank 5

IIT Delhi, the fifth ranked biotech institute, offers biochemical engineering & biotechnology (BEB) course through an integrated approach model of teaching and research and development of various bioprocesses. "The courses offered by the

department are BTech and MTech in biochemical engineering and Biotechnology, MS (Research) in Biomedical Engineering and Biotechnology, and pre PhD courses. The BEB course has been running since 1989 and we have 17 fulltime faculty, 13 of whom have over five years of experience and all of them are PhDs. The Department also offers a summer training program in May/June every year to provide intensive practical training to post graduate students. IIT Delhi spends close to Rs 1 crore on infrastructure related to books, journals, lab equipment, and consumables every year and we have about Rs five crore worth of sponsored projects in hand," observed Dr AK Srivastava, professor and head, Department of Biochemical Engineering & Biotechnology, IIT Delhi.

Rank 6

The School of Biotechnology at Guru Govind Singh Indraprastha University, established in 1999 at the Kashmere Gate Campus in Delhi, is the sixth ranked biotech institute. According to Prof. PC Sharma, dean, University School of Biotechnology, Guru Gobind Singh Indraprastha University, New Delhi, "The BTech program curriculum stresses on convergence in modern biology, engineering and technology, applied orientation, quantitative approach, practical training, awareness of the broader social, economic, environmental, ethical, legal and managerial issues in biotechnology. Its faculty strength is 12 and has quality laboratory infrastructure for teaching and research, individual projects and good library. The school spends about Rs 2 crore on this infrastructure and has Rs 8.55 crore of industry and government sponsored projects The school offers a 5½ year (11 semester) integrated BTech/MTech program in biotechnology through an All India entrance examination. The school has a strong research program and PhD is offered in various disciplines of biotechnology like agricultural, environmental, industrial, biomedical and pharmaceutical biotechnology.

Rank 7

Jawaharlal Nehru University, Center for Biotechnology, Delhi is ranked number seven. But it undoubtedly runs one of the finest masters degree programs in biotechnology. The CBT was established in 1985 under joint sponsorship of the UGC and the Department of Biotechnology. And in the same year the Master of Science program in Biotechnology was started at the Center.

According to Prof. Rakesh Bhatnagar, head of the center, "The Center has a very successful MSc biotech program, which selects the best of the students from the merit list prepared on the basis of an All India Entrance Test conducted by JNU. Most of the MSc students have gone to do research in different institutions in the country and abroad. The students have got selected in many of the top research universities across the world-Cambridge, Oxford and Stanford. About a third of JNU students go to the US, another one-third go to Europe and the rest get into the top Indian research institutes for their post doctorate degree. Very few students have taken up jobs in the industry."

The spends close to Rs 3.8 crore on infrastructure every year and has also cash flows in the form of royalties worth Rs 25 lakh during 2005-06.

Rank 8

MS University of Baroda's Department of Microbiology & Biotechnology Center, Vadodara, is the eighth ranked institute in this year's survey. In fact it is the top ranked institute on the placement score. About 10 companies participated in the campus recruitment and over 15 students were given job offers. According to Prof BB Chattoo, coordinator, biotechnology, the Department of Microbiology and Biotechnology Center at The Maharaja Sayajirao (MS) University of Baroda, "The department offers a two-year post graduate program leading to the Master of Science (MSc) in Biotechnology and we have a strong base in microbial technology and the main features of the program include genetics, molecular biology, industrial microbiology, biophysics, bioinformatics and immunology. The biotechnology center takes about 10 students and has research projects over Rs 3.8 crore at hand."

Rank 9

Madras Veterinary College is one of the oldest institutes started in 1903. The Department of Animal Biotechnology, which was started at the Madras Veterinary College in 1989, is the ninth ranked institute. Dr P Ramadass, professor and head, Department of Animal Biotechnology, Madras Veterinary College, said, "The Indian Council of Agricultural Research (ICAR) recognized the center as a 'Centre of Excellence in Veterinary Biotechnology and Immunology' in 1999. This Department is the first Animal Biotechnology Department in India that has been awarded the ISO 2001:9000 for Quality Management Systems through the British Standards Institute, UK. It has been awarded a niche area scheme on 'Molecular diagnostics for emerging avian viral diseases and their immuno pathogenesis' with a budget overlay of Rs 2 crore for two years."

Rank 10

University Institute of Engineering & Technology (UIET), Panjab University, Chandigarh is ranked tenth in this year's survey. According to Prof. BS Sohi, director, UIET, Panjab University, "The department is running the BE Biotechnology course since 2002 and we have a faculty strength of 12. The institute spends about Rs 50 lakh on infrastructure. Further about Rs 10 crore worth of equipment is available at central instrumentation facility at Panjab University for biotechnology students.

The BT education in India has been in the public domain, though in the last few years the private institutes have invested money in higher education. Amity Institute of Biotechnology, Noida, Birla Institute of Technology, Jaypee Institute of Information Technology, Biotechnology, Noida, The Oxford College of Science, Bangalore, Seedling Aacademy of Design, Technology and Management, Jaipur, Shree Manibhai & Navalben Virani Science College, Rajkot, etc. are making significant inroads into imparting BT education. One big difference between the private and the public institutes is that the private players focused more on placing the students in the industry.

As has been mentioned in the survey methodology earlier, four parameters have been used to arrive at the overall score or ranking-Faculty, Infrastructure, Industry interaction and Placements. Even within Top 10, ranking of institutes vary substantially on these four parameters throwing up gaps, which can be addressed by the respective institutions. To take some examples:

- RGCB occupies the top rank under Infrastructure, second rank under Faculty and fourth rank under and Industry Interaction but does not do well on Placement. On the last parameters, the University does not figure even in Top 20 institutes for the particular parameter. This is understandable considering the fact that it is a research institute. Perhaps, in the next few years one has to look at the number of incubations that the public institutions have as one of the ranking parameters.

- University of Hyderabad stands second an overall ranking and is top ranked on Faculty and Industry Interaction and eighth on infrastructure and tenth on placement.

- NDRI is ranked second on industry interaction, third on infrastructure, and fourth on faculty. Its placement ranking in not among the Top 20. The reason it is a research institute too.

- Institute of Chemical Technology, Mumbai figures in Top 10 on three parameters-Faculty, Industry Interaction, and Placements.

- Given its fifth overall ranking, IIT, New Delhi does well on Faculty, Infrastructure and Placement scores but it did not do well on Industry
  Interaction.

One would observe that the rankings are contrary to public perception. The reason for this is that we have not ranked the institutes on the basis or courses but on the basis of institutes offering biotech education-be it BTech, MTech, MSc, PhD. It may also be pointed out that the data analysis has been done on the basis of the data provided to us by the institutes and we have not physically verified the same visiting the campuses. That is why one finds it different from the popular perception. Take for example the IIT Kharagpur. One of the students has informed us that it is missing from our surveys. "I think this is one of the best with its facilities and achievements by its undergrads. It is preferred over IIT D biotech. The facilities at IIT KGP's biotech department come in one to the best in India," said the undergraduate from IIT Kharagpur. However, we did not have the filled forms from IIT Mumbai and IIT Kharagpur, despite constant follow-ups. So our survey is based on the available written information and we have tried to be as objective and succinct as possible.