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Biotech Education Market in India garners over Rs 1,050 crore

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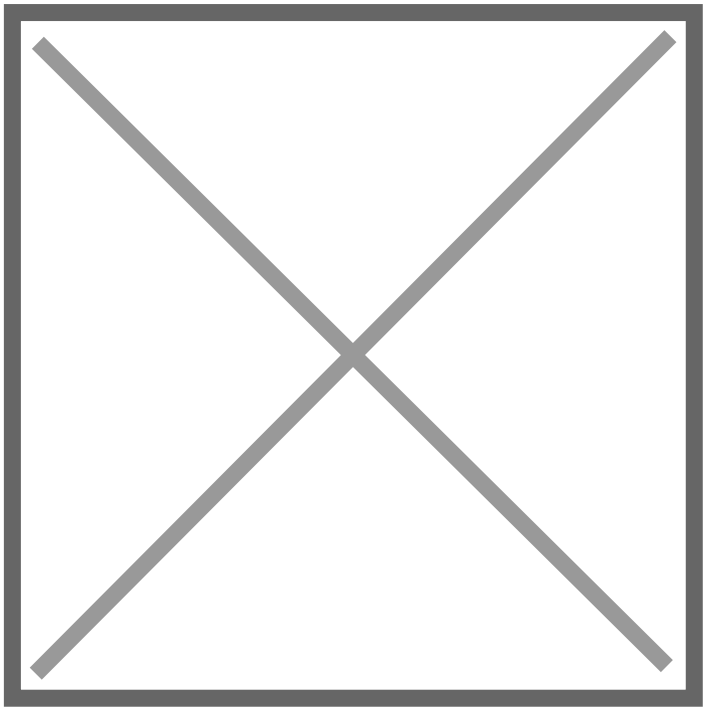
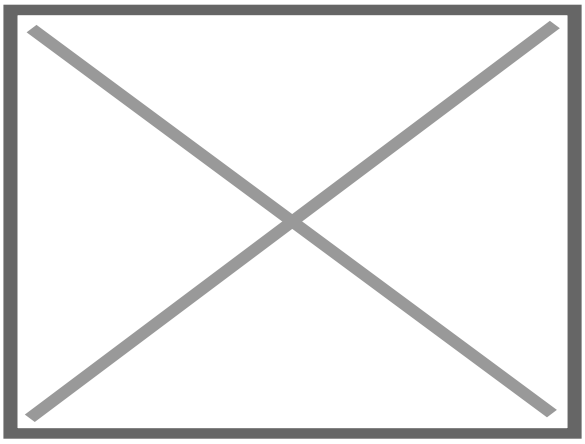


380	120	1.15 Lakh
Private institutes	Public institutes	Number of students



The Biotech Education Market in India in 2009 wasworth 1,050.72 crore with over one lakh students studying in more than 500 institutes. According to BioSpectrum estimates, about 380 private institutes are offering under graduate, post graduate, MPhil and PhD courses and 120 public institutes are offering post graduate and PhD courses. The private institutions are collecting an average fee ofÂ 3.2 lakh per course per student except few institutions that are charging higher fees-in some cases over three times the average.

While a student pursuing masters from a public institute pays just 49,200 for the two-year course, students opting to study biotechnology at private institutes pay as high as six-and-a-half times the fees the public institutes are charging, according to the results of the 6th BioSpectrum Top 20 BT Schools Survey. Forty nine public and private institutes actively participated in the 2010 survey.

Some of the premier universities such as Jawaharlal Nehru University are charging a meager fee ofÂ 1,391 for the entire course of two-years. Similarly, other leading universities such as Cochin University of Science and Technology, MS University of Baroda, Banaras Hindu University are offering the biotechnology courses to students at6,190, 4,260 and 8,858 for the entire course. The public universities are able to offer the biotechnology courses at an affordable fee to the students as these are receiving grants from different government agencies.

In private institutes category, Shree Manibhai Virani & Smt Navalben Virani Science College has been charging about 21,000 per annum. Sitadevi Ratanchand Nahar Adarsh College and Maharani Lakshmi Ammanni College For Women are offering Biotechnology courses at 28,000 per annum. The Biotech course at Gokaraju Rangaraju Institute of Engineering and Technology and Arunai Engineering College is being offered to students at 30,000 per annum and 32,500 per annum respectively. While other institutes in private sector are offering the course at higher fees with over Rs one lakh per annum.Â

These 49 institutes have 1,054 full time faculty of which 706 are PhDs holders. About 822 are teaching at the private institutes and 232 are teaching at the public institutes. The private institutions have published 459 papers in the national journals and 701 in international journals in the last three years. Similarly, the faculty at public institutes published 233 papers in national and 888 papers in the international journals in the 2007-2010 period. Faculty at the leading institutes such as Vellore Institute

of Technology, SASTRA University and Jaypee University of the Information and Technology have published maximum number of papers during the period.

Of the 49 institutes, 32 have conducted campus interviews. About 1,922 students got placed during the campus placements. Meanwhile, over 3,300 students expressed interest in continuing education and research in this space. The highest salary package offered to a BTech graduate was ₹4.8 lakh to a student from RV College of Engineering in Bangalore. The average annual highest package for a BTech student offered at the placement time was ₹3.82 lakh. For the post graduate student the average highest package offered was ₹3.16 lakh and lowest package offered was ₹1.94 lakh per annum. For a PhD holder average annual package offered by the companies was ₹6 lakh.

Jawaharlal Nehru University (JNU) continue to remain a much-sought-after institute among students who are keen on joining courses in biotechnology. The JNU received over 2,500 applications for an intake of 8 PhD seats. Similarly University of Hyderabad and Institute of Chemical Technology, Mumbai attract a lot of attention among the students as these received 4,121 applications for 101 seats and 277 applications for 40 seats for post graduate courses.

However, the question often raised by the industry is how employable is this talent pool. A lot can be done on this front in the general view. According to Dr Yogeshwar Rao, senior scientist, Indian Institute of Chemical Technology (IICT), Hyderabad. Ã¢â?¬Å?There is a need to create finishing schools as a part of existing research institutes. Often there are voices within the industry saying that these graduates are not employable. Therefore, we need 'advanced learning schools'. Persons trained in one particular area need to impart added skills in students.Ã¢â?¬?

Ã¢â?¬Å?The industry generally feels that the institutes are not creating the industry-oriented professionals. They might be right, but the universities generally don't expect their students to work directly in the industry after their post-graduation courses,Ã¢â?¬? observes Dr Bhat.

The business aspect of the biotech cannot be overlooked for long and it needs to be put in place at the right time. Otherwise, the whole industry is set to lose in the long run. There are two ways in whichÂ one can find solution for this. Those having a flair for corporate world should beÂ given an opportunity in this industry and at the same time, the research-oriented students should get ample support to help them in their pursuit. In this regard, the segregation seems to be one of the keys.
Sujay Shetty, associate director of pharma and life sciences, PricewaterhouseCoopers, India, says, Ã¢â?¬Å?There is a strong need for metrics in education. There is no dearth in courses and programs, but, we need to introspect on the quality of graduates we are creating.Ã¢â?¬?

The way forward

The Department of Biotechnology, Government of India, is taking initiatives to bridge the gap between education and employment by remodeling the existing educational set up with emphasis on multidisciplinary research. The other government agencies such as the Department of Science and Technology, and the Indian Council of Medical Research are also taking steps to reform the education system.

Dr TS Rao of the Department of Biotechnology, says, Ã¢â?¬Å?DBT has been ensuring that there are changes in the educational system. We have been taking the multidisciplinary approach towards education. The work on translational research facilities at Faridabad Biocluster is one such initiative.Ã¢â?¬?

DBT intends to select two to three universities per year across the nation and then send a team to selected universities to undertake an analysis of strengths and weaknesses in infrastructure, inter-disciplinary research programs, skill and leadership gaps. Taking this initiative further, DBT has selected the Banaras Hindu University (BHU) and Osmania University for this program. The other universities included in the program are the state agricultural universities such as Punjab Agricultural University, Tamil Nadu Agricultural University, University of Agricultural Science-Dharwad, and G B Pant University of Agriculture and technology. As part of its long term approach, DBT is expected to cover about 30 universities by next 10 years. This is due to the fact that the process of negotiation and engagement is repetitive, serious and requires critical thinking. So, this time consuming process limits the ability to handle not more than three universities per year.
In an interview published in Biotech News, Dr MK Bhan, secretary, DBT, has rightly put forward the strong need to change the thinking and attitude towards the universities and research institutes. While highlighting his point, he said, Ã¢â?¬Å?Generally the universities are considered only as education centers and the research institutes as centers for strategic or applied research. Therefore, the universities have not been given much attention in terms of funding and support. Universities lack adequate resources, effective leadership and good governance. In comparison to this, the research institutes have been able to attract good faculty due to more resources and adequate funding.Ã¢â?¬?

Recently, the DBT also invited letter of intent for upgradation, remodeling and creation of interdisciplinary program of life sciences (IPLS) for advanced research and education in Central/State universities. The specific objective is to upgrade the

post graduate teaching and training laboratories in terms of infrastructure and equipment, appoint new faculty, provide fellowships for students, introduce training programs, regroup research activities in emerging areas along the biotech innovation chain (from discovery to market) and promote academia-industry interaction. The mantra here is innovate or perish.

India moots HR strategy for Biopharma

According to a note prepared by FICCI and the Department of Pharmaceuticals (DOP), the program-based teaching, is the way forward and has to replace the department-based teaching, in specialty areas. The primary reason given is that innovation, now lies in combining subjects, and is not within the domain of any subject. Combinatorial subjects are the 'new subjects' and can be modified, changed, kept dynamic, as time goes by. Such additions to the Education and Research (E&R) HR strategy, according to paper, would augur well to catalyze the Biopharma Leadership Plan.

Highlights

1. The paper suggests that the biology as a subject is generally seen as boring or with uncertain future.Â Since the modern biology is different from the traditional biology and has mass appeal, there is need to draw mathematicians, physicists and engineers to help in augmenting the speed and depth of biopharma research.
2. The paper emphasizes on industry linkage to help in translational research by using common knowledge, equipment and science.Â Apart from NIPER, several institutes of DBT, CSIR and some independent ones, are functioning under DST.Â These institutes are present all over India and if they contribute to the common goal, it would be easier to build upon their research and develop some innovative products. Also, the coordination between the industry and these institutes would lead to the tremendous progress.

BioSpectrum Bureau