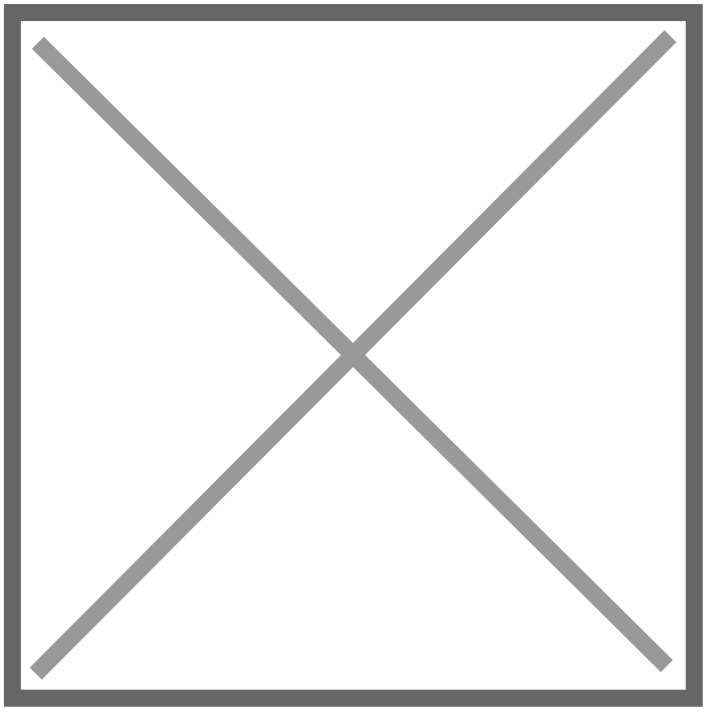
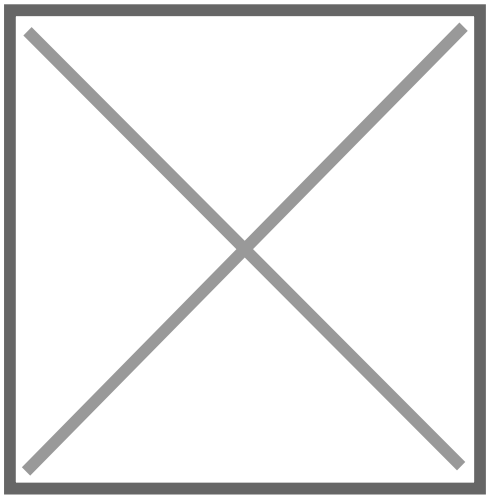
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Your BT Education Options

11 May 2005 | News



Biotechnology is an interdisciplinary subject offering flexible eligibility criteria at the entry level.



Biotechnology can be chosen as the area of specialization/study at the graduation, post graduation or research level. The field offers late entrants the advantage of not necessarily having a prior degree in the subject. Some important prerequisites and entry levels for biotech education in India are listed below:

BSc Biotechnology

Many State universities offer a BSc degree in Biotechnology like Bangalore University (Karnataka), Chaudhary Charan Singh University, Meerut, (Uttar Pradesh), Kakatiya University, Warangal (Andhra Pradesh), Madras University, Chennai (Tamil Nadu), Osmania University, Hyderabad (Andhra Pradesh), Patna University, (Bihar) and many others.

The eligibility criterion is essentially 40 percent (the minimum percentage may vary from state to state) in PUC/10+2/Intermediate/equivalent with science subjects. The duration of the course is three years and admissions are either through an entrance exam by the university/institute or percentage-based.

BTech/BE Biotechnology

Some of the IITs offer a four-year BTech course in biotechnology. IIT Kharagpur offers a BTech degree program in Biotechnology and Biochemical Engineering while IIT Chennai and Guwahati give a BTech degree in Biotechnology. In 2004, IIT Kanpur introduced a BTech degree in Biological sciences and BioEngineering.

Admission to these IIT undergraduate programs is through an all India competitive exam - the Joint Entrance Examination (JEE).

Besides the IITs, several other institutes and universities offer a BE/BTech Biotechnology course. For example, the Anna University in Chennai has been offering a BTech program in Industrial Biotechnology since 1992. Some other universities offering BTech (Biotechnology) courses include Bharathidasan Institute of Engineering and Technology, Tiruchirappalli; Guru Gobind Singh University, Delhi; Guru Nanak Dev University, Amritsar (BTech Chemistry and BioEngineering); UP Technical University, Lucknow, Vellore Institute of Technology, Vellore (Tamil Nadu). This is just a representative list.

Students are selected either through the All India Engineering Entrance Examination (AIEEE), or the common entrance exam conducted by the state governments.

MSc Biotechnology

At present there are 30 MSc courses in general biotechnology, seven in agricultural biotechnology; one in medical biotechnology; two in marine biotechnology, one in industrial biotechnology and three courses in neurosciences running in various universities in the country which are supported by the Department of Biotechnology (DBT).

Students are admitted to different universities through an All India combined biotechnology entrance examination, conducted by Jawaharlal Nehru University (JNU), New Delhi (on behalf of Department of Biotechnology) in May every year.

MTech Biotechnology

IIT Delhi and IIT Kharagpur offer a five-year integrated dual degree MTech course in Biochemical Engineering and Biotechnology with the support of DBT. IIT Chennai offers a similar integrated MTech course in Biotechnology. Students are eligible to enter these integrated courses after completion of 10+2 with science.

MTech Biotechnology program (of 2 years/4 semester) are offered by Anna University, Chennai and University of Technology, Kolkata and IIT Kanpur with the support of the DBT. Candidates who have done BPharma or BTech/BE course in biotechnology or related disciplines or MSc Life Sciences are eligible for this program. The admissions are either through the joint biotechnology entrance exam conducted by JNU or through GATE. An MTech degree in BioProcess Technology is offered by the University Institute of Chemical Technology, Mumbai. This course is also supported by the DBT. Students with bachelor's degree in chemical engineering, pharmacy, chemical technology with GATE are eligible and the selection is based on the GATE scores plus the ICT written test and interviews.

The Birla Institute of Technology (BITS), Pilani also offers a ME degree in biotechnology.

MBA Biotechnology

The University of Pune pioneered a unique two-year fulltime MBA program in biotechnology in 2002. The syllabus is based on the requirements of the industry. About 60 percent of the syllabus covers the managerial aspect and the rest covers the nitty gritty of biotechnology.

Bioinformatics courses

Bioinformatics, an offshoot of biotechnology, has been lately attracting a lot of attention. This has led to specialized BSc/MSc and BTech courses in this branch. Bharathiar University, Coimbatore and Pune University, which has a center of excellence in bioinformatics, offer a two-year MSc courses in bioinformatics. The Guru Gobind Singh Indraprastha University has been offering a BTech course in bioinformatics since 1999.

DBT supports a one-year course (Advanced Diploma in Bioinformatics) in five Indian universities - Calcutta University, Jawaharlal Nehru University (New Delhi), Madurai Kamaraj University, Pondicherry University and Pune University.

Apart from the DBT-supported courses, the Bangalore-based Institute of Bioinformatics and Applied Biotechnology (IBAB) offers a 16-month postgraduate diploma course in bioinformatics.

The Bioinformatics Centre (BIC) at Jawaharlal University, New Delhi, a pioneer in bioinformatics education in the country, offers a PhD program in bioinformatics.

PhD programs

India boasts of a network of research institutes spread around the country established both by government and private sector. Students wanting to pursue an active career in biotech research can enter any CSIR, ICAR or ICMR lab depending on their qualification and area of specialization.

CSIR

The Council for Scientific and Industrial Research holds national-level joint CSIR-UGC Examination (NET) generally twice a year, one in June and another in December. This examination determines the eligibility of Indian nationals for the award of Junior Research Fellowships (JRF) and for appointment of lecturers in science and arts disciplines.

Considering the emergence of new specialized disciplines and their need in drug R&D, CSIR has recently permitted fresh engineering and medical graduates and MPharm candidates with a valid GATE score to avail CSIR fellowships for pursuing a research career, in addition to CSIR lateral entry as Senior Research Fellow.

ICAR

The Indian Council of Agricultural Research (ICAR) promotes science and technology programs in agricultural research and education and carries out research directly through ICAR institutes and national research centers, project directorates and also in association with the State Agricultural Universities (SAUs) through the all India coordinated research project systems.

The Agricultural Research Services (ARS)/National Eligibility Test (NET) examination is conducted by Agricultural Scientists Recruitment Board (ASRB) (Krishi Anusandhan Bhavan, Pusa, New Delhi) for filling up vacancies of scientists of the ARS institutes, the ICAR institutes and for recruitment of lectures and assistant professors by the State Agricultural Universities (SAUs).

ICMR

The Indian Council of Medical Research (ICMR) formulates, coordinates and promotes biomedical research in India.

Apart from the labs falling under CSIR/ICAR, almost all the IITs, institutes and universities having a life/biological sciences department, further research in this frontier area of knowledge. Admission to these PhD programs is made on the basis of written test/interview conducted by the department/center concerned. The Indian Institute of Science (IISc), a premier scientific research institute, conducts both PhD and integrated PhD programs (directly after BSc) in biological sciences, which includes research in biotechnology also. Admission to IISc is through an entrance exam conducted by the institute or is based on the GATE score followed by an interview.