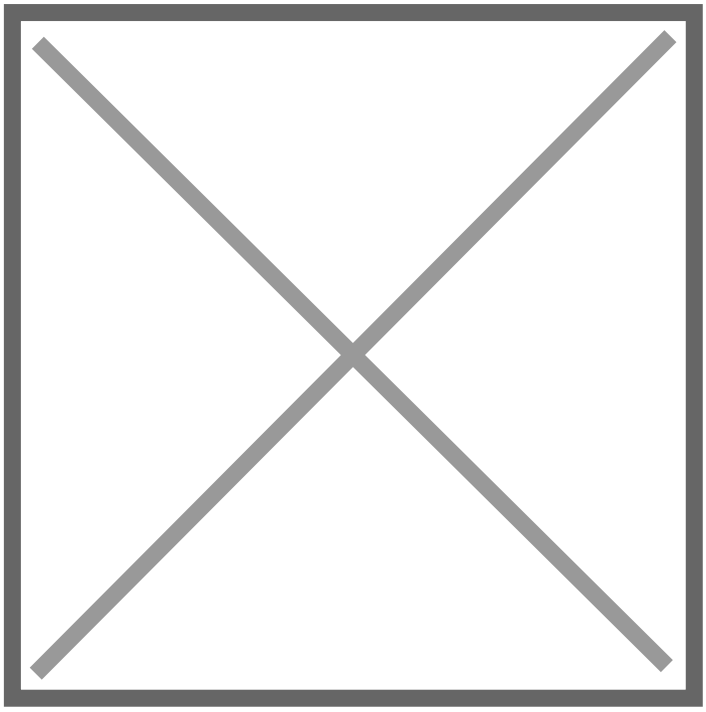
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Biotech Admissions

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Biotech Admissions

For a structured training in Biotechnology, one can choose it as an area of specialization at the UG, PG or research level. Being an interdisciplinary field, higher education in biotechnology does not necessarily call for a prior degree in the same subject. BioSpectrum presents the course duration along with the admission criteria at various levels.

BSc Biotechnology

Duration: The duration of the course is three years.

Eligibility: 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.

Procedure: Admissions are either through an entrance exam by the university/institute or percentage based.

BTech/BE Biotechnology

Duration: The duration of the course is four years.

Eligibility: The minimum qualification for admission is a pass grade in the final examination of 10+2 system or its equivalent with a science background. For the BTech program at the IITs there is no prerequisite of biology at school level for admissions.

Procedure: The admission to these IIT undergraduate programs is through an All India competitive exam-the Joint Entrance Examination (JEE). The admissions to the BTech program at the IITs is held once a year in July through the JEE conducted on an All India level in April/May. The admission is offered on the basis of one's choice vis-a-vis his/her All India Rank in the JEE.

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

MSc Biotechnology

Duration: The duration of the course is two years.

Eligibility: Candidate with Bachelor's degree under 10+2+3 pattern of education in biological, agricultural, veterinary and fishery sciences, pharmacy, engineering, technology or medicine (MBBS) or BDS with at least 55 percent marks are eligible for the All India biotechnology entrance exam conducted by Jawaharlal Nehru University.

Students wanting to opt for this course at other universities/institutes should have a BSc degree with a minimum of 50 percent aggregate marks (this percentage may vary from state to state) with chemistry or biochemistry as a compulsory subject and any one optional subject like botany, applied botany, zoology, environmental science, sericulture, biotechnology and genetics.

Procedure: On behalf of nearly 60 participating Universities, the Jawaharlal Nehru University (JNU), New Delhi conducts an All India Combined Entrance Examination for admission to MSc program in Biotechnology/MSc (Agri) Biotechnology/ MVsc (Animal) Biotechnology and MTech Biotechnology. The students are admitted to these universities through an All India Combined Biotechnology Entrance Examination, conducted by JNU (on behalf of Department of Biotechnology) in May every year.

The admissions are either percentage based or through an entrance exam conducted individually by other universities/institutes. The courses are very popular, which is evident from the fact that approximately 21,000 students competed for 428 seats of MSc General Biotechnology in the JNU Common Entrance Exam during 2006-07.

In addition to the DBT supported postgraduate courses, many universities, private colleges and institutes are also offering masters program in biotechnology.

MTech Biotechnology

Duration: The duration of the course is two years.

Eligibility: This is open to candidates with a BTech/BE/B Pharma degree in relevant disciplines. A valid GATE score is a prerequisite to enter the MTech program at the IITs. Admission is also allowed in the MTech programs for the sponsored candidates from the industries as well as research organizations and those admitted need not have qualified GATE. The MTech program is open to students from all streams of science, engineering medicine and pharmacology.

For the five-year integrated dual degree MTech course in Biochemical Engineering & Biotechnology at the IITs, students are eligible to enter after completion of 10+2 with science.

Procedure: The admissions are either through the joint biotechnology entrance exam conducted by JNU or through GATE.

MBA Biotechnology

Duration: The duration of the course is two years.

Eligibility: Students with a qualification in life sciences, natural sciences, veterinary science, ayurveda, allopathic medicine, engineering, etc are eligible to apply.

The University of Pune pioneered a unique two-year fulltime MBA program in biotechnology in 2002. This was the first such program by an Indian university or institute in the country. The favorable response to this course has led many institutes to start the MBA biotech course.

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. The intake for these courses is based on All India Entrance Exams that are conducted by the respective centers. The Bioinformatics Centre (BIC) at Jawaharlal University, New Delhi, a pioneer in bioinformatics education in the country, offers a PhD program in bioinformatics. In the past few years, many private institutes have also started offering BSc/MSc Bioinformatics courses.

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. The basic qualification required is a post graduation degree with a CSIR/ICAR fellowship and/or a good GATE score.

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/centre 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.

IBAB

Set up in 2001, the Institute of Bioinformatics and Applied Biotechnology (IBAB) is a joint venture of the Government of Karnataka and the ICICI Bank as a public-private partnership. Over 150 students have successfully graduated from IBAB and are now working in industry and academic institutions nationally and internationally.

IBAB currently offers two full-time courses:

PGDB: The postgraduate diploma in bioinformatics (PGDB) is of 18 months (3 semesters including an internship) duration. This course provides competence in biology/bioinformatics by training students in the areas of cell/molecular biology, computer science, statistics, chemistry and drug design. Related topics like IPR, scientific writing, entrepreneurship, clinical trials are also part of the curriculum. Lectures, seminars, hands-on projects, both in-house and during industry and academic internship, form part of the learning process at IBAB. Those who can apply include graduates/postgraduates from engineering, computer science, statistics, mathematics, physics, chemistry, pharmacy, medicine, agriculture, veterinary and other life sciences.

LCBT: The laboratory course in biotechniques (LCBT) is of six or 12 months (in the latter case, a diploma including an internship) duration. It is an intense course in techniques designed to train life science students and professionals in extraction and purification of bio-molecules (DNA, RNA and proteins), electrophoresis, PCR, blotting, recombinant DNA technology, cell culture and other related skills. The course is designed to cater to another segment of the biotech industry. MSc in Life sciences, BTech Biotech and MBBS students can apply.

Admissions

Admissions for the seventh batch of PGDB students and the fifth batch of LCBT students will start in August 2007. Both the courses will start in November 2007.

Selection criteria

Candidates for both these courses are selected based on an all-India entrance test, which will be conducted in Mumbai, Delhi, Chennai, Kolkata, Bangalore and Hyderabad followed by an interview at Bangalore. More information can be had from www.ibab.ac.in/

Workshops and training programs

Apart from the two regular full-time courses, IBAB also conducts workshops and short-term training programs. So far IBAB has conducted more than 20 workshops covering topics like business of biotech, hands-on bioinformatics, cell biology, small molecule drug design, clinical trials and recombinant DNA techniques. The duration of these workshops range from a day to three weeks.

Biozeen

Biozeen is an integrated consulting, research and training organization providing specialized services for the biopharmaceutical and biologics industries. As a training institution, Biozeen provides practical hands on training to enrich technical and operational skills. Together, with a team of leading industry professionals and a state-of-the-art cGMP compliant pilot plant at its 10-acre campus in Bangalore, Biozeen is a single source for efficient, cost effective and targeted solutions for bioprocess engineering.

Training plant

Biozeen's training plant includes: Class 10,000 and 1,00,000 clean room areas, bioreactors of 5L/10L/30L/100L capacities to facilitate growing of microbial/yeast/animal cell culture, downstream process equipment consisting of cell harvesting and cell disruption systems, chromatography, micro filtration and sterile filtration systems, perfusion system for recovery of extra cellular products, seed production facility, media/buffer production facility, steam and dry heat sterilization facilities, clean utilities system comprising of WFI generation and distribution systems/pure steam generation and distribution systems/purified water generation and distribution systems/compressed air systems etc, back utilities system comprising steam generation unit, water-softening systems etc., full fledged quality control laboratory with state-of-the-art equipment for hands-on, real world learning.

Courses

Designed in a modular format, Biozeen offers 12 modules of one month duration each. For the convenience of students and industry, all modules run concurrently. Participants can opt for the modules of their choice or to complete all 12 modules for comprehensive knowledge and certification with immense industry value. In addition, Biozeen offers customized training to client specifications. Training can be conducted at client site or at Biozeen facilities.

One-year program: The one year long course on Biopharmaceutical Production & Engineering covers: Microbiology, Microbial Fermentation, Animal Cell Culture, Downstream Processing, Sterilization, Filtration & Sterile Techniques and CIP, Biopharmaceutical Facility Engineering, Process Equipment Design, Process Equipment Automation, CAD for Bioprocess Engineering, PLC Programming & Automation and Regulatory Aspects and Documentation.

Summer training: This training is on Biophamaceutical Production and Engineering which will give an overview of Microbiology, Microbial Fermentation, Animal Cell Culture, Downstream Processing, Sterilization, Filtration and Sterile Techniques and CIP and Biopharmaceutical Facility Engineering.

One-week course: The short-term practical intensive course on Microbial Fermentation and Animal Culture for Monoclonal Antibody production provides an insight into the field of biopharmaceuticals providing those intending to enter this field, a career guidance.

More details can be had from www.biozeen.com.