

Biotechnology is a science that involves manipulation of living organisms to get the desired results. The techniques involved in the process have evolved parallel to and subjected by the development of other areas of science and technology.

Bi.P.C students can seek admission in this stream of engineering, provided they take the bridge course in Mathematics offered by Board of Intermediate before the counselling.

Biotechnology is an integration of several sciences, applied to living cells, with the possibility of producing from widely available renewable resources, substances and compounds essential to life and the well being of man. so it is an **interdisciplinary science** encompassing not only biology, but also other subjects, including physics, chemistry, mathematics and Engineering. Mainly research-oriented, it is the field that has created Dolly, the cloned lamb, and introduced scientific methods for genetic engineering, and new modes of propagation.

Biotechnology is one of the fastest growing fields as it finds **applications** in areas as varied as medicine, food technology, pharmaceuticals, agriculture and environmental conservation. In fact, the use and application of biotechnology spans a wide range of activities, including developing new varieties of seeds, improving livestock breeds, creating pesticides of various kinds, formulating cures for genetically inherited diseases and developing industrial enzymes that hasten the production processes.

There are many application of biotechnology such as developing various medicines, vaccines and diagnostics, increasing productivity, improving energy production and conservation. **Biotechnology's intervention** in the area of animal husbandry has improved animal breeding. It also helps to improve the quality of seeds, insecticides and fertilizers. Environmental biotechnology helps for pollution control and waste management.

The work of Biotechnologist is essentially scientific and research oriented, which aims at the application of technology to the improvement of life and development of a variety of end uses, Biotechnologists are therefore involved in production as well as marketing and research.

Most of the information that has led to the emergence of biotechnology in the present form has been generated during the last five decades. The setting up of a separate Department of Biotechnology (DBT) ([www.dbtindia.nic.in](http://www.dbtindia.nic.in)) under the **Ministry of Science** and Technology in 1986 gave a new impetus to the development of the field of modern biology and biotechnology in India. More than 6000 biotechnologists of higher skill are required in India as per the report from the Human Resource Development Ministry. To overcome this vast requirement the department of Biotechnology (DBT) has highlighted the need to set up a regulatory body for the maintenance of standard education under the name of 'All- India Board of Biotechnology Education and Training' under the AICTE.

### **Job Opportunities :**

As there is increasing popularity and explosive growth, there is plenty of opportunities available in Biotechnology field. You can be a Research Scientist, Teacher, Marketing manager, Science Writer, Bioinformists, Quality Control Officer or Production in-charge in the Food, Chemical and Pharmaceutical industry. Analyst (Venture-Capitalist) Environmental / Safety Specialist .Biotechnology companies require Corporate Executives with business / management Degrees. A graduate in Biotechnology can get job in government sectors such as Universities and Colleges, Research institutes or at Private Centers as Research scientists / assistants.

1. **Lab technician** : Includes cleaning and maintaining equipment used by scientists and working on the various pieces of lab equipment as instructed.
2. **Research associate** : If you are interested in Research and Development, then becoming a Research Associate can provide an interesting career that allows you to carry out experiments under the instruction of established Scientists.
3. **Research scientist** : If you wish to enter the field at a high level, you may choose to become a Research Scientist. This involves working alongside established scientists to design and carry out experiments, then writing reports for future publication.
4. **Engineer (Chemical, Electrical, Environmental and Industrial)** : This position would involve engaging in a range of projects from building robots to assisting with Research and Development.
5. **Sales representative** : As a sales representative, you would work with hospitals, doctors and a wide range of medical institutions to keep them aware of biotechnology's latest offerings, as well as trying to encourage their approval for your products over rival products in the market.
6. **Marketing** : In biotechnology marketing, you would manage and devise campaigns aimed at particular customer areas, through such methods as working with advertising agencies and maintaining a visible presence at medical conventions and trade shows.
7. **Business development manager** : This position involves working with colleagues to introduce products and to negotiate agreements with strategic partners.

