

#### CARRIER OPPORTUNITY IN BIOTECHNOLOGY

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#### Abstract:

Biotechnology is commonly known as 'Biotech' and it is one of the most preferred courses among engineering aspirants. Biotechnology is the branch of science in which the amazing combination of biology and technology transforms raw materials into amazing innovations, discoveries and products. In the year 1919, the **Hungarian agricultural engineer Karl Ereky** first used the term biotechnology. Whether it is biological substances like bacteria, yeast or enzymes, after gaining knowledge of biotech, you will be able to use each microorganism to perform work related to industrial or manufacturing processes. **Biotechnologist** works in various fields such as Animal Husbandry, Agriculture, Medicine, Genetic Engineering, Environment Conservation, Healthcare and Research and Development. **Keyword:** Biotechnology, Animal Husbandry, Agriculture, Medicine, Genetic Engineering, Environment Conservation,

#### 1. Course Type and Duration

##### i) Diploma courses:

To get a Diploma in Biotechnology, students can apply for this course in those colleges which offer this diploma course to the students after passing 10th class. The duration of this course in India is 3 years

##### ii) Undergraduate courses:

You can apply to do graduation in Biotechnology in institutes and universities which offer undergraduate courses. The duration of this undergraduate course is 4 years and students have to pass an entrance exam to take admission in this undergraduate course.

##### iii) Postgraduate courses:

At the postgraduation level, this course is often known as M.Tech in Biotechnology or MSc in Biotechnology. It depends on the university or institute that offers postgraduate degree or diploma to the candidates. The duration of this course at postgraduation level is only 2 years.

#### **iv) Doctoral Programs:**

Candidates who want to pursue a doctoral degree in Biotechnology can apply for PhD courses after completing their postgraduation. The duration of PhD courses is usually 3 to 4 years depending on the research work involved to complete the thesis. PhD can be done in full time and part time manner.

#### **v) Sub-Specialization Courses under Biotechnology:**

**Genetic:** Students interested in scientific research related to genetics and cell biology can choose this course. They will be taught about various medical diagnostics, therapies and therapeutics. For example: Projects on sequencing the human genome.

**Virology:** This subject is usually taught in the fourth semester of Biotechnology. The study of Virology helps you understand the fundamentals of molecular virology and its applications in the real world.

**Immunology:** This course helps us understand more about how the human immune system works so that we can know how technology can help humans avoid weakening of the immune system.

**Bio-statistics:** Bio-statistics is a field of biotechnology through which one can apply the concepts of mathematics and statistics in various experiments conducted by researchers. Using this information, biostatisticians can collect, dissect, and summarize data and then present concrete information.

**Pharmacology:** Students studying pharmacology learn how to prepare drugs at low cost and how to evaluate the effects of these drugs on tissue and cell function in humans and animals.

**Molecular biology:** This specialization helps in understanding the nuances of nucleic acids and proteins for their applications in areas like human and animal health, agriculture and environment. Students studying this course can use their knowledge to develop drugs, therapies and diagnostic tests to maintain human and animal health.

**Animal Husbandry:** Biotechnology has become a wonderful boon for livestock breeding. This branch of Biotechnology helps the students to gain knowledge about Embryo Transfer, Artificial Insemination, Cloning and many other concepts for the health and welfare of living beings on earth.

**2. Top 10 Biotechnology Institutes in India:** Biotechnology is one of the important courses offered by various institutes in India. Among them, the following are the names of Top Biotechnological Institutes recognized by UGC, which have been highly praised along with being given prominent position in NIRF Ranking for the year 2018:

1. IIT, Madras
2. Department of Biosciences and Bioengineering (BSBE), IIT, Mumbai
3. Department of Biochemical Engineering and Biotechnology, Indian Institute of Technology, New Dehli

4. IIT Kanpur
5. IIT Rudki
6. IIT Guhati
7. Anna University Chennai
8. IIT Hyderabad
9. Indian institute of Chemical Technology

### 3. Salary:

Level	Salary
Fresher	2-5 lac
Mild Level	5-10 lac
Senior Level	10-15 lac
Top Level	More than 15 lac

### 4. Reference:

1. Google.com