Program/Course Outcome

Program: B.Sc. (Medical)

Course: Biotechnology

Biotechnology (commonly abbreviated as **biotech**) is the broad area of biology involving living systems and organisms to develop or make products, or "any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use". On choosing biotechnology as a career, the person specializing in the field will be referred to as a **Biotechnologist**. On being a part of this field, one will be carefully have to study the biotechnology" encompasses a wide range of procedures for modifying living organisms according to human purposes, going back to domestication of animals, cultivation of the plants, and "improvements" to these through breeding programs that employ artificial selection and hybridization.

Program Outcome:

Biotechnology as a career as a number of specializations because of which the students are presented with a plethora of career options once they chose to be associated with this field. This field is concerned with the preservation and management of animal kingdom and a career in it would mean that you are a part of that responsibility.

A Biotechnologist might even get to travel because the nature of his / her job:-

1. Biotechnology is one of the most progressive and beneficial scientific advances of the last quarter century. An interdisciplinary field that includes mathematics, physics, chemistry, engineering and others, it combines various- technologies to either create a new product or modify an existing one to suit our needs.
2. Its widespread application across multiple industries like food, pharmaceutical, chemical, bio-products, textiles, medicine, nutrition, environmental conservation and animal sciences makes a career in biotechnology one of the fastest growing fields with ample opportunities for qualified professionals.
3. Biotechnology combines the theoretical (genetics, molecular biology, biochemistry, embryology and cell biology), and the practical (chemical engineering, information technology and robotics) scientific aptitude, a keen interest in the biological sciences, problem solving skills. An analytical mind is essential for successful career in biotechnology.
4. A bio-technologist may find jobs in various quarters. Biotechnology jobs in India can be found in the following fields:

    - Drug and pharmaceutical research
    - Public funded laboratories
    - Chemicals

- Environment control
- Waste management
- Energy
- Food processing
- Bio-processing industries

5. While government institutes and organizations, such as Department of Biotechnology (DBT), several agriculture, dairy and horticulture institutes may offer job opportunities to Biotechnology professionals, one can expect the best salary in private sector.
6. Drug companies in biotechnology like Dabur, Ranbaxy, Hindustan Lever and Dr Reddy's Labs that have their R & D units offer Biotechnology professionals with handsome pay-packages. There are also ample opportunities available to bio-technologists in the food processing industry, chemical industry and the textile industry.
7. Some industries employ bio-technologists in their marketing divisions to develop business in sectors where their products would be required.
8. The major companies, hiring bio-technologists, include Hindustan Lever, Thapar Group, Indo American Hybrid Seeds, Bincon India Ltd., IDPL and Hindustan Antibiotics.

On successful completion of these courses the students should be able to understand fundamental concepts of biotechnology and eligible to apply for various jobs in Private as well in Govt. Sectors.

Course Outcome:

(a). Introduction to biotechnology & Biochemistry–I
(b). General microbiology & Biochemistry–II
(c). Immunology and molecular biology
(d). Molecular biology
(e). Plant Biotechnology & Animal biotechnology
(f). Microbial biotechnology

Students will be able to understand the following:

1) Able to understand the basic concept of technology used in biology to understand the mechanism of inheritance. Biochemistry is very important part of biotechnology through which Students will be able to understand the basic concept about structure, function of proteins, carbohydrate, lipids and other biomolecules.
2) Able to understand the basic concept about structure, function and use of bacteria, viruses and other micro-organism for humanwelfare.
3) Able to understand the basic immunological process and structure and function of immune system of human body.

4) Students will be able to understand the structure and function of heredity material DNA and RNA and also know about the technique used in isolation, identification, visualization and sequencing of the DNA and RNA.

5) Able to understand the basic knowledge about the Plant and animal tissue culture, about basic concept of transgenic plants and animals.

6) Students are able to understand the industrial use of enzymes, micro-organism, fermentation process etc.