

# Biotechnology

Biotechnology is an integration of knowledge about life and living organisms with modern technology to create new systems, devices, materials, food etc. that is essential to life and the well being of man. Thus it is an interdisciplinary science blending not only biology, but also other subjects, including physics, chemistry, mathematics and Engineering. Biotechnology is one of the fastest growing fields as it finds applications in diverse areas like 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 genetic disorders and developing industrial enzymes that hasten the production processes. Currently, there are more than 250 biotechnology health care products and vaccines available to patients, more than 13.3 million farmers around the world use agricultural biotechnology to increase yields, prevent damage from insects and pests and reduce farming's impact on the environment.

Under Ministry of Science and Technology a separate Department of Biotechnology (DBT) ([www.dbtindia.nic.in](http://www.dbtindia.nic.in)) was established in 1986 which gave a new drive to the development of biotechnology in India. The State Government of Gujarat has also identified Biotechnology as the most potential tool for development and to facilitate the development of biotechnology in the State, it has constituted Gujarat State Biotechnology Mission (GSBTM), under the umbrella of Department of Science and Technology.

## [Second Year]

Semester- 3		
<b>Core Courses</b>		
Biotechnology	1.	Fundamentals of Biotechnology - I
	2.	Applications of Biotechnology - I
	3.	Practicals
Biochemistry	1.	Biochemistry of Biomolecules - I
	2.	Biophysical & Environmental Biochemistry
	3.	Practicals
<b>Elective Courses</b>		
Elective	1.	Elective
	2.	Elective
<b>Foundation Course</b>		
	1.	Functional English

Semester- 4		
<b>Core Courses</b>		
Biotechnology	1.	Fundamentals of Biotechnology - II
	2.	Applications of Biotechnology - II
	3.	Practicals
Biochemistry	1.	Biochemistry of Biomolecules - II
	2.	Biophysical Biochemistry
	3.	Practicals
<b>Elective Courses</b>		
Elective	1.	Elective
	2.	Elective
<b>Foundation Course</b>		
	1.	Functional English

## [Third Year]

Semester- 5		
<b>Core Courses</b>		
Biotechnology	1.	Molecular Biology
	2.	Molecular Techniques
	3.	Plant Biotechnology
	4.	Immunology
	5.	Environmental Biotechnology
	6.	Cell Biology
	7.	Practicals (Paper 1 & 2)
	8.	Practicals (Paper 3 & 4)
	9.	Practicals (Paper 5 & 6)

Semester- 6		
<b>Core Courses</b>		
Biotechnology	1.	Recombinant DNA Technology & Applications
	2.	Animal Biotechnology
	3.	Enzymology
	4.	Virology
	5.	Industrial Biotechnology
	6.	Metabolism
	7.	Practicals (Paper 1 & 2)
	8.	Practicals (Paper 3 & 4)
	9.	Practicals (Paper 5 & 6)