

MS IN BIOTECHNOLOGY WITH SPECIALIZATION IN APPLIED BIOTECHNOLOGY (MSBOT)

2 years, full-time and residential



FOCUS AREAS

- ▶ Molecular Biology
- ▶ Recombinant DNA technology
- ▶ Recombinant protein expression
- ▶ Genomics and proteomics
- ▶ Systems biology

Biotechnology is a combination of Biological Sciences, and Engineering and Technology, where properties of biological molecules are harnessed for the benefit of human kind. Biotechnology is truly interdisciplinary as Chemistry, Physics, Engineering and Medical Sciences are all involved in one or the other way. Biotechnology industry is continuously expanding in India. The Central as well as State Governments are establishing Biotechnology Parks to specifically promote the Biotech industry. In the academic field, the Government is investing in new degree programs through the departments of Biotechnology, Science and Technology. Biotechnology has been around us for many thousand years. When the human kind first used domesticated crops and animals, it was ancient Biotechnology. In the present times, Biotechnology has helped us produce vaccines, drugs, improved food crops, improved livestock and saved millions of lives. Human health, food and water needs are going to be fulfilled with the help of Biotechnology. Since these are basic human necessities, there will always be demand for Biotechnologists all over the world.

The objective of this program is to provide the training in the emerging field of Biotechnology and Molecular Medicine and prepare the human resources that will be needed to carry out research and development work, for experiments on animal models of human diseases, for supporting the medical staff in generating patient specific gene/protein expression profiling for diagnostic and therapeutic purposes. This unique program will provide the students with an opportunity to work in specialized labs in government as well as private institutes and industries, in clinical research and trials after successfully completing the program. This program will expose the students to the basic and applied aspects of Molecular basis of human diseases, Animal modeling of human diseases, and the allied subjects like Molecular Biology and Developmental Biology and bring them to a level of understanding whereby they realize the importance of learning to a scientific application. To attain this goal, we will use a combined approach involving lectures, journal club discussions, oral presentations and exposure to research work in the laboratory.

ELIGIBILITY

Bachelors or Masters Degree in Biotechnology and Bioinformatics, in any branch of Life Sciences, Medical Sciences, Pharmaceutical Sciences, Chemical Sciences, Physical Sciences, Engineering and Technology or equivalent (with minimum 55 percent marks or equivalent grades).

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COURSE STRUCTURE

SEMESTER	CODE	COURSE NAME	CREDITS
SEMESTER I			
	MBOI-001	Molecular and Cell Biology	6
	MBOI-002	Developmental Biology	6
	MBOI-003	Introduction to Systems Biology	6
	MBO-001	Overview of Stem Cells	6
	MBOI-004	Applications of Genomics and Proteomics	6
	MBOI-005	Immunology and Vaccines	6
	MBO-002	Seminar	4
	MIN-001	Life Skills Development I	6
		Total	46
SEMESTER II			
	MBOI-006	Computational Molecular Biology	6
	MBOI-011	Animal Biotechnology	6
	MBOI-012	Plant Biotechnology	6
	MBOI-013	Medical Biotechnology	6
	MBOI-014	Molecular Basis and Animal Modeling of Human Diseases	6
	MBOI-008	Hematopoietic Cancers	6
	MIN-002	Life Skills Development II	6
		Total	42
SEMESTER III			
	MBOP-001	Research Project Phase I	36
SEMESTER IV			
	MBOP-002	Research Project Phase II	48
Total Credits			172